RA RODEO

RA Rodeo Owner’s Handbook

GM Holden Ltd, ABN 84 006 893 232 (hereinafter Holden)

Change of name, address or ownership

In the event of a Safety Recall, or for various reasons, Holden may need to contact you as the owner of this vehicle.

If you have recently changed your address, or name, or purchased this vehicle second-hand, please help us to help you by taking a few minutes to fill in and mail the forms at the beginning of the Service/warranty booklet.

For information about GM Holden's privacy policy or to update owner details online, please visit Holden's website at www.holden.com.au

Note Please refer to the inside front cover of the Service/warranty booklet for the Vehicle Identification Certificate.

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We thank you for choosing Holden and want to assure you of our continuing interest in your motoring pleasure and satisfaction and compliment you on your choice.

This handbook applies to all Rodeo models. Due to different models and options, you may find reference in this handbook to some equipment not installed in your own vehicle.

Please note that all information, illustrations and specifications in this handbook are based on the latest production information available at the time of printing.

Holden reserves the right to make changes at any time without notice and without incurring any obligation.

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CHAPTER 1

Dashboard

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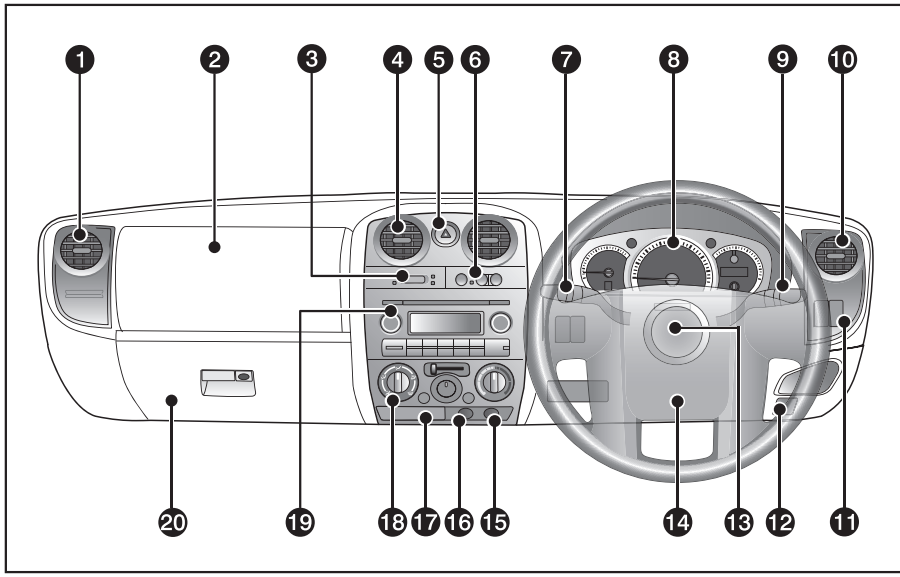
*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

DASHBOARD LAYOUT



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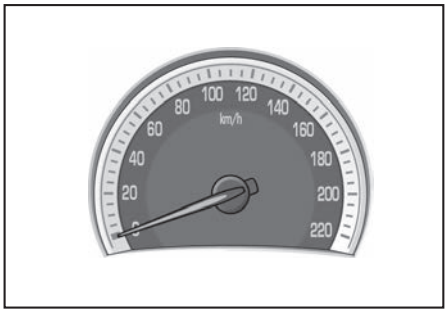
INSTRUMENT PANEL

GAUGES

Speedometer

The speedometer gauge indicates the vehicle speed in kilometres per hour (km/h).



Odometer and tripmeter

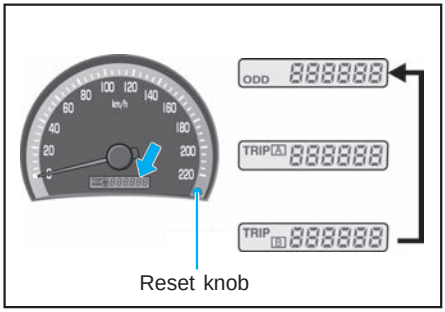
Note For odometer and tripmeter operation on vehicles with Electro-luminescent* gauges and trip computer, refer to *Trip computer* further on in this chapter.

A small window under the speedometer is used for the tripmeter and odometer.

The odometer records the distance travelled since the vehicle was built, and the tripmeter records the distance travelled on a particular journey. The tripmeter can keep a record of two different journeys at the same time.

The tripmeter reset knob is located at the lower right-hand side of the speedometer dial.

With the ignition switched on, push the reset knob to change the display between **ODD** (odometer), **TRIP A** and **TRIP B**. If the reset knob is pressed for more than one second, the tripmeter resets to zero.

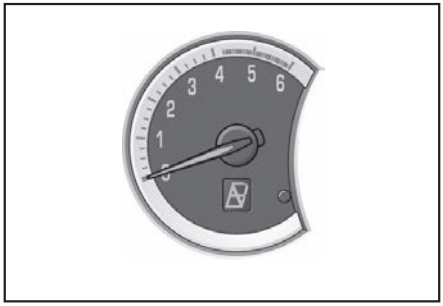


Tachometer*

The tachometer indicates the engine speed in revolutions per minute (RPM). The red zone of the tachometer indicates critical engine speed.

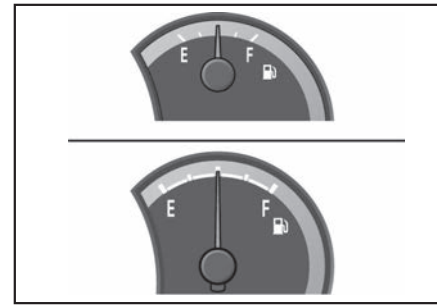
WARNING

Never operate the vehicle with the tachometer needle in the red zone. Continued operation with the tachometer needle in the red zone will lead to serious engine damage.



INSTRUMENT PANEL cont.

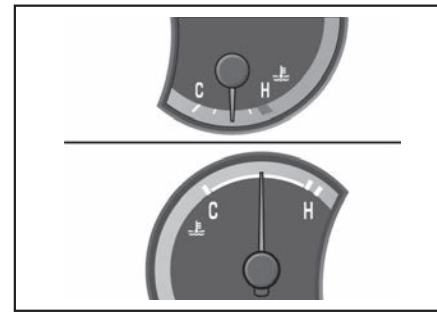
Fuel gauge



The fuel gauge indicates the level of fuel within the fuel tank when the ignition switch is on. **F** represents full, **E** represents empty. The needle in the fuel gauge falls to **E** when the ignition switch is turned off. The fuel tank contents displays when the ignition is turned to **ON**.

Refer to chapter 5 for refuelling instructions.

Temperature gauge



The temperature gauge indicates the temperature of the engine coolant when the ignition switch is turned on.

Stop-start driving in heavy traffic, driving at high speed in warm weather, hill climbing or towing may cause the needle to move toward the extreme top of the gauge. This is normal, and is no cause for concern. However, if the needle moves all the way to the **H** mark on the gauge and remains there for more than 30 seconds, you should stop the vehicle as soon as it is safe to do so. Refer to chapter 6 for overheating instructions.

Clock*

The time on the clock displays when the ignition switch is in the **ON** position. The clock display is adjusted as follows:

H Hour display advances rapidly while this button is pressed.

M Minute display advances rapidly while this button is pressed.

SET When the **SET** button is pressed, the time is rounded off to the closest hour.

The clock does not display seconds, but starts from zero when the **SET** button is pressed.

INSTRUMENT PANEL cont.

DIMMER CONTROLS

Dimmer – instrument lighting

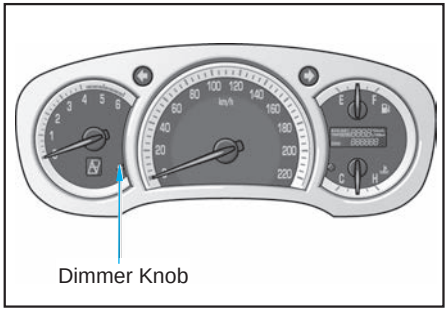
To adjust the instrument lighting brightness, ensure the headlights or park lights are switched on. Turn the dimmer thumb wheel, located to the right-hand side of the steering column, to adjust the instrument lighting to the desired brightness.

Dimmer – electroluminescent* instrument lighting

To adjust the instrument lighting brightness press the dimmer knob, the level of brightness can be reduced by 6 stages during day light hours and 5 stages during night hours.

Note

- When the ignition is switched on, the instruments will illuminate and all the gauge needles will sweep to their maximum position then back.
- If the ignition is switched on, when the headlights are on, the gauge needles do not move.



Cancelling gauge needle movement

To cancel the gauge needle movement when the ignition is switched **ON**, follow the procedure below.

1. With the ignition switch and headlight switch turned **OFF**, press and hold the dimmer knob.
2. Turn the ignition switch to **ON** while pressing the dimmer knob.
3. Turn the ignition **OFF** while pressing the dimmer knob.
4. Release the dimmer knob.

Note To activate gauge needle movement follow the same procedure again.

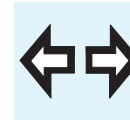
WARNING/INDICATOR LIGHTS

Automatic transmission oil temperature

The automatic transmission oil temperature warning light will illuminate for three seconds after the ignition switch is turned to the **ON** position, to check that the light is working.

If the light illuminates while driving, this indicates that the automatic transmission oil temperature is too high. You should stop the vehicle as soon as it is safe to do so, leave the engine idling and place the automatic transmission in **P** (park). If the light extinguishes, you may resume driving. If the light does not extinguish, have your automatic transmission checked by your Holden Dealer as soon as possible.

Turn signals



When the turn signal lever or hazard warning switch are switched on, the turn signal indicator light (within the instrument panel) flashes to indicate operation of the turn signal lights or hazard warning lights.

High beam

This indicator light is displayed when the headlight's high beams are in use.

Oil pressure

The oil pressure warning light displays when the ignition switch is turned **ON** and it remains on until the engine is started, to check that the light is still working.

If the oil pressure light illuminates while driving, this indicates that the oil pressure is dangerously low. Stop immediately and check the engine oil level. Refer to *Engine oil level* in chapter 7. Do not drive the vehicle with the symbol showing. If the oil level is normal, have the system checked at your nearest Holden Dealer as soon as possible.

Low fuel

The low fuel indicator light illuminates when the petrol tank is approaching empty. Never let the tank become empty.

WARNING/INDICATOR LIGHTS cont.

Brake

If the brake warning light illuminates while driving and the park brake is fully released, there maybe a fault with the braking system. You should immediately stop the vehicle (as carefully as possible) and check the fluid level in the brake master cylinder. Refer to *Brake and clutch fluid levels* in chapter 7. Do not proceed until the reason for the warning has been located and rectified.

In addition, diesel equipped vehicles are fitted with a low vacuum warning which may illuminate when the brake pedal is pumped while the engine is running at low speed. This is due to insufficient vacuum being generated and does not indicate a problem. However, if the light illuminates after two or three seconds at idle, the vacuum line may be defective. Contact your Holden Dealer.

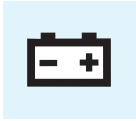
Anti-lock Brake System (ABS)*

The warning light (ABS) will illuminate when the ignition switch is turned to the **ON** position, and will go out after a few seconds, to check that the light is working.

If the light illuminates while driving, carefully stop the vehicle and switch off the engine. If the light illuminates again while driving, have the system checked by your Holden Dealer.

Note This light indicates that the anti-lock braking system is not operating. Your vehicles brake system will still operate conventionally. Refer to *Anti-lock brake system (ABS)* in chapter 4.

Battery



To check that the warning light is working, the light illuminates when the ignition switch is turned to the **ON** position, and will remain on until the engine is started.

If the light illuminates when driving, this may indicate that the alternator is not charging the battery. If the alternator drive belt is intact, there is a problem in the charging system. Contact your Holden Dealer.

Glow plug indicator (diesel only)

The glow plug indicator light may remain on for a short time or may extinguish right away. The waiting time will vary with the engine and coolant temperatures. When the glow plugs are sufficiently heated for cold engine starting, the light will extinguish. This indicates that the engine is ready to be started.

Door open indicator

The indicator light illuminates if any door is not fully closed, when the ignition switch is turned to the **ON** or **START** position.

WARNING/INDICATOR LIGHTS cont.

Water separator (diesel only)

Under certain circumstances water may be trapped in the fuel tank. To prevent this water from reaching the vital parts of the engine or fuel system, a water separator is installed. When the level of the water within the water separator reaches a specified level, the indicator light illuminates. If the light illuminates and remains on while the engine is running, the water needs to be drained from the water separator. Refer to *Draining water separator* in chapter 6.

Four wheel drive indicator (4WD only)

The light illuminates for two seconds when the ignition is switched to the **ON** position, to check that the light is working.

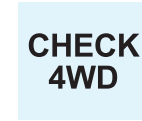
The light illuminates when the transfer control switch is in the **4H** or **4L** position. Refer to *Four wheel drive system operation* in chapter 4.

4L (4WD only)

The **4L** light illuminates for two seconds when the ignition is switched to the **ON** position, to check that the light is working.

This indicator light operates in combination with two other indicator lights (4WD and Neutral) and indicates the state of the 4WD system. The **4L** indicator light will illuminate when the transfer control switch is pressed.

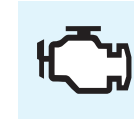
Check 4WD (4WD only)



The **CHECK 4WD** illuminates for two seconds when the ignition is switched to the **ON** position, to check that the light is working.

Have the system repaired if the **CHECK 4WD** light does not come on for two seconds after the ignition switch is turned to the **ON** position. Also, repair of the system is required when the **CHECK 4WD** lights up after the two second bulb check. Have your Holden Dealer inspect the system and correct the problem.

Check engine light (petrol L4 and diesel)



This vehicle is fitted with an electronic engine management system. The light indicates when a system service is required.

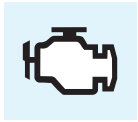
The illuminates when the ignition is turned to the **ON** position and remains on until the engine is started to check that the light is working.

If the light illuminates while driving or does not illuminate when the ignition switch is turned to the **ON** position, this indicates a fault in the engine management system or the engine immobiliser system.

Although the vehicle may still be driveable, it is recommended that you have a Holden Dealer correct the problem as soon as possible, as continued driving could affect fuel consumption and engine performance.

WARNING/INDICATOR LIGHTS cont.

MIL - Malfunction indicator light (petrol HFV6)



This vehicle is fitted with an emission monitoring system. The light illuminates when the ignition is switched **ON** and extinguishes shortly after the engine starts to run.

If the light illuminates when driving, the emission system may require servicing. Although the vehicle may still be drivable and not require towing, consult the nearest Holden Dealer as soon as possible. However, if the light flashes while driving, reduce speed until the light stops flashing and take the vehicle to your Holden dealer as soon as possible.

SVS indicator light (petrol HFV6)

The SVS light is designed to indicate the need for system service. It illuminates when the ignition switch is in the **ON** position, but before the engine is started, to let you know the bulb is working. Have the system repaired if the SVS light does not illuminate when the ignition switch is in the **ON** position, but before the engine is started.

If the light flashes and the engine will not start, switch **OFF** the ignition for at least 5 seconds before attempting to start the engine again. Refer to *Immobiliser* further on in this chapter.

Note If the light illuminates either intermittently or continuously while driving, service is required. Even if the vehicle is drivable, and does not require towing, contact your Holden Dealer as soon as possible for service of the system. Continued driving could cause damage to the emission control system. It could also affect fuel economy and driveability.

Cruise set*

The cruise control has a light which illuminates when the cruise control is maintaining vehicle speed. Refer to *Cruise control*, further on in this chapter.

Airbag*

To check that the airbag system is working, the light will flash seven times when the ignition switch is turned **ON**.

If the light illuminates while driving, it indicates that the airbag system may not inflate in an accident. Contact your Holden Dealer.

Seat belt reminder*

When the ignition switch is turned **ON**, the light illuminates to remind occupants to fasten their seat belts.

WARNING/INDICATOR LIGHTS cont.

Power drive (auto transmission)

The **POWER DRIVE** indicator light illuminates when the ignition switch is turned to the **ON** position for 3 seconds, to check that the light is working. The light illuminates when power drive is selected. Refer to *Automatic transmission* in chapter 4.

Check trans (auto transmission)

The **CHECK TRANS** warning light illuminates for 3 seconds after the ignition switch is turned **ON**, to check that the light is working.

If the **CHECK TRANS** light illuminates, the computer controlling the automatic transmission has found a problem. The vehicle can still be driven when the **CHECK TRANS** light is illuminated, however the computer will put the automatic transmission into 'safety mode'. Refer to *Automatic transmission* in chapter 4. Ensure the automatic transmission is checked by your Holden Dealer as soon as possible.

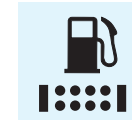
3rd start (auto transmission)

The **3rd STRT** warning light illuminates for 3 seconds after the ignition switch is turned **ON**, to check that the light is working.

The **3rd STRT** light illuminates when the engine is running with the automatic transmission lever in **D** range, and the **3rd STRT** button is selected. For diesel, the **3rd STRT** indicator light will not illuminate unless the vehicle has stopped or is travelling at a speed below 11 km/h.

For HFV6, the light operates continuously regardless of vehicle speed. Refer to *Automatic transmission* in chapter 4, for further information.

Replace fuel filter indicator light (diesel only)



The diesel fuel filter indicator light illuminates when the diesel fuel filter requires replacement, contact your Holden Dealer as soon as possible.

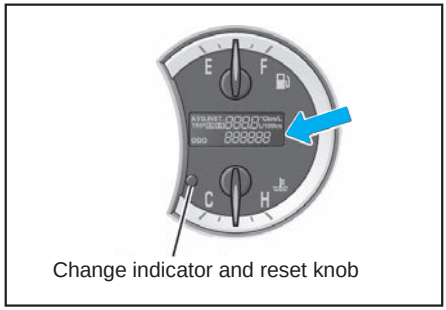
Lights on indicator light*

Illuminates when the light switch is turned to the **ON** position.

*TRIP COMPUTER**

The trip computer display is located at the right of the speedo. It has five functions:

- The odometer records the distance travelled since the vehicle was built.
- The tripmeter records the distance travelled on a particular journey. The tripmeter can keep a record of two different journeys at the same time.
- The outside temperature is displayed in °C.



Change indicator and reset knob

Diesel only

- The instant fuel shows the instantaneous fuel consumption rate in litres per 100 km when driving.
- The average fuel shows the average fuel consumption rate since the trip computer was reset.

  Note Average fuel can be displayed in both km/L (kilometres per litre) or fuel consumption rate (litres per 100 km).

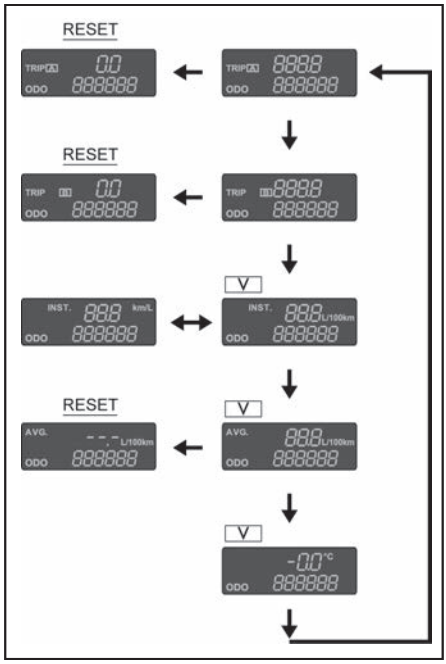
Change indicator and reset knob

Push the reset knob briefly, to cycle the display in the order of **TRIP A**, **TRIP B**, instant fuel consumption (**INST**), average fuel consumption (**AVG.**) and outside temperature.

Push the knob for more than one second when **TRIP A** or **TRIP B** is displayed, and the value will be reset to 0.

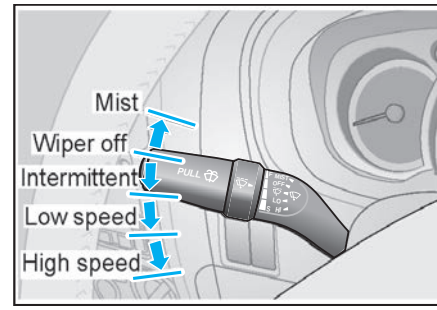
If the reset knob is pressed for more than one second when the instant fuel consumption is displayed, the value can be switched between km/L (kilometers per litre) or fuel consumption rate (litres per 100 km).

Note Once the display is reset, the fuel consumption value will be displayed after a distance of approximately 200 meters.



WIPERS AND WASHERS

Wipers and washers



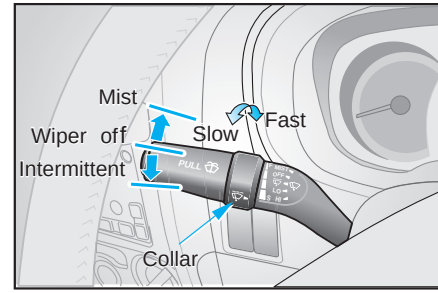
WARNING

Never operate the wipers on dry glass, as this will damage the rubber and scratch the windscreen. Ensure the wipers are clear of any snow or ice before switching them on.

The wiper/washer lever is located on the left-hand side of the steering wheel column and operates the wipers and washers. When the wiper/washer lever is shifted down to the **LO** position, the wipers operate slowly. When shifted down to the **HI** position, the wipers operate faster. To stop the wipers, shift the wiper/washer lever up to the **OFF** position.

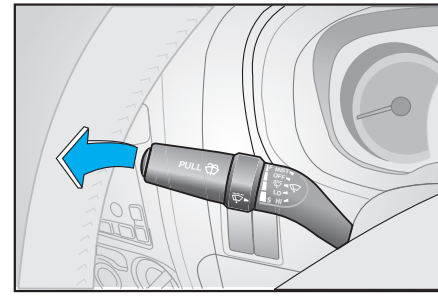
When the lever is shifted up and held in the **MIST** position, the wipers continue to operate while the lever is held.

Variable intermittent windscreen wipers*



Move the lever down to the first stop to set the wipers to the intermittent position. The frequency of the intermittent wipe can be adjusted by rotating the collar. Rotate the collar up for more frequent wipes, or down for less frequent wipes.

Windscreen washers switch



To spray washer fluid onto the windscreen, pull the wiper/washer lever towards you. Even if the wipers setting is not selected, the wipers will move and operate as long as the lever is held in this position.

On models with intermittent wipers, the wipers will continue to operate for a short time after the lever is released.

DEMISTER, HORN AND AUDIO SYSTEM

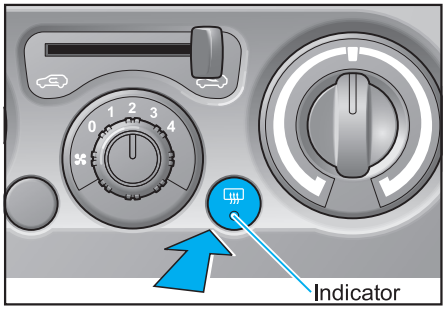
Rear window demister*

The ignition must be in the **ON** position to operate the demister. The demister switch is located on the heater control panel.

To operate the rear demister press the switch. The light in the demister switch illuminates.

The rear window demister is fitted with an auto cancel timer, which will switch the demister OFF automatically after 10 minutes.

Switch the demister off manually by turning the ignition switch to **ACC** or by pushing the demister switch again.



WARNING

- Do not use any abrasive cleaner to clean the inside of the rear window. Normal window cleaning can be done by using a commercial liquid ammoniated cleaner.
- Be careful not to scratch or damage the demister wires when cleaning the rear window.
- The rear window demister draws a high battery current. Unnecessary use of the rear window demister will drain your vehicles battery.

Horn

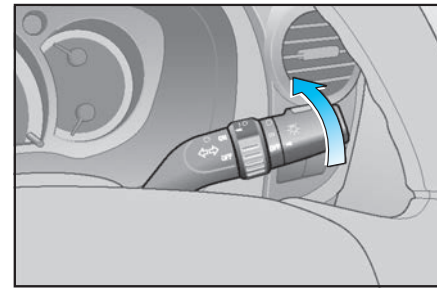
To activate the horn, press the pad, located in the centre of the steering wheel.

Audio system

Refer to the operating instruction supplement in your glovebox for all information relating to the radio/CD player in your vehicle.

HEADLIGHTS

Light switch



The light switch has three positions:

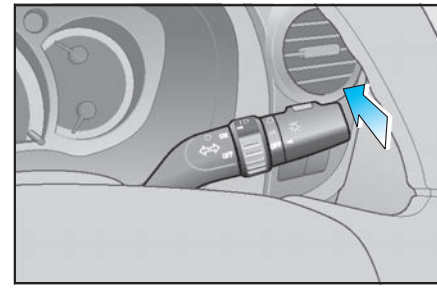
OFF All lights off.

Park lights and instrument lights on.

Headlights, park lights and instrument lights on.

Note A constant tone chime reminds you to switch the headlights off before leaving your vehicle. It will sound when the headlights are switched on and the driver's door is opened.

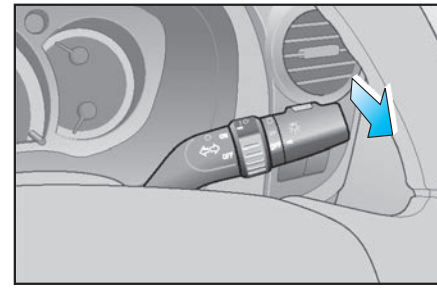
High/low beam



With the headlights on, push the lever on the right-hand side of the steering wheel column until you feel a click, then release it. To return to low beam, pull the lever towards you.

The headlight high beam indicator on the instrument panel illuminates when the headlights are in high beam.

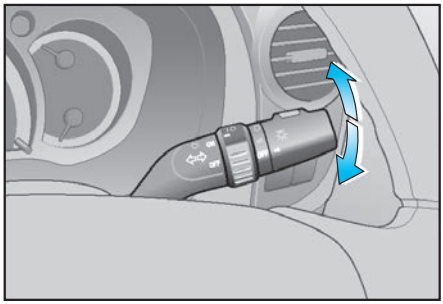
Flashing high beam



It is also possible to flash the high beams for signalling purpose by pulling the lever toward you (even with the headlights switched off). The lights remain in high beam as long as the lever is held in this position.

TURN SIGNALS, FOG LIGHTS AND IGNITION SWITCH

Turn signals

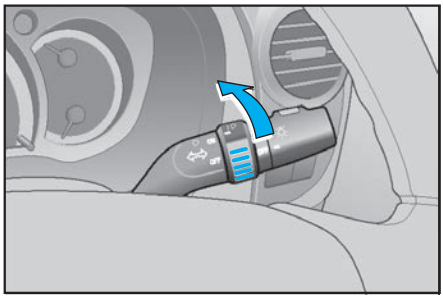


The turn signal lever is on the right-hand side of the steering column. Push the lever up to signal a left turn and down to signal a right turn.

In some turns (such as changing lanes), the steering wheel is not turned far enough to cancel the turn signal, so, to indicate a lane change, move the lever part way and hold it. The lever will return to the neutral position when released.

An arrow on the instrument panel flashes when the turn signals are in operation.

Fog lights switch*

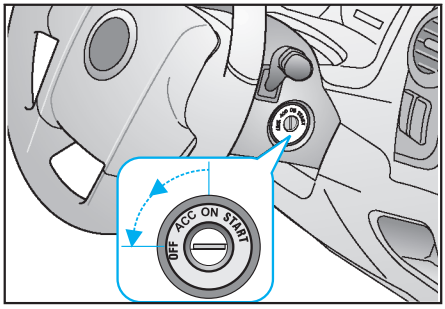


The fog light switch is located on the turn signal lever.

To operate the fog lights, rotate the fog light switch collar upward.

The fog lights are operational when the park or headlights are switched on (with the ignition switched **ON** or **OFF**).

Ignition switch



OFF: This is the normal parking position for the ignition switch; the accessories and engine are off. The ignition key can only be removed from the ignition switch when it is in this position. When the key is removed the ignition and steering are locked. To release the steering lock, insert the key into the switch and turn the key to any other position. If you have trouble turning the ignition key to unlock the steering, turn the steering wheel slightly to the right or left while turning the key.

Note The ignition switch cannot be turned to **OFF** and the key cannot be removed when the shift lever is out of the **P** (park) position (automatic transmission only).

ACC: When the ignition key is in this position, the engine is off, but accessories such as the radio will still operate. To avoid flattening the battery, avoid excessive use of accessories when the engine is not running.

ON: In this position, the engine is ready to start and all electrical systems are active. Do not leave the ignition switch in this position for a prolonged period unless the engine is running, otherwise the battery will discharge.

START: This is the position for starting the engine. The ignition key should be released from this position as soon as the engine starts.

IMMOBILISER, HAZARD WARNING & PARK BRAKE

WARNING

Do not turn the engine off while the vehicle is moving. Power assisted equipment (such as brakes or steering) which are operated by the engine will be ineffective. Never remove the key while the vehicle is moving, as this will lock the steering.

Immobiliser

To provide additional security, the vehicle is fitted with an immobiliser. It prevents unauthorised engine starting.

The correctly programmed ignition key will be recognised by the vehicle when the key is inserted into the ignition switch, allowing the engine to be started.

The immobiliser system is deactivated when the key is turned to the **START** position. Removing the key from the ignition automatically activates the immobiliser system.

Note Any additional or replacement keys must be purchased from and programmed by your Holden Dealer.

If the immobiliser system has developed a fault or an incorrectly programmed key is used to attempt to start the vehicle, the check engine indicator light will begin to flash and the engine will not start. Return the ignition switch to the **ACC** position and after 10 seconds, turn to the **ON** position again. If the indicator continues to flash, contact your Holden Dealer.

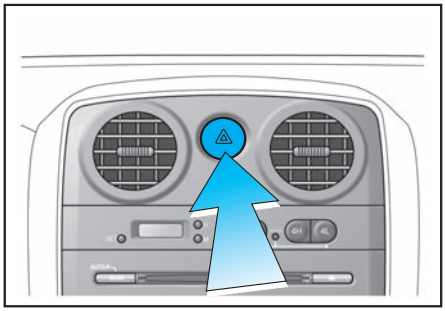
If the check engine indicator light is illuminated after starting the engine, refer to *Warning lights* previously in this chapter.

Note

- The immobiliser system does not lock the doors. The doors need to be locked when leaving the vehicle.
- Avoid attaching any items to the ignition key which may interfere with the immobiliser signal.
- Avoid placing another immobiliser key on the same key ring.
- Avoid having keys from other vehicles attached to the ignition key.
- Do not break the key.
- Do not disassemble key.
- Do not dip the key into water or any other liquid.
- Do not place the key anywhere where it may be exposed to high temperatures.
- Do not attempt to start the vehicle with a non-approved key.
- Replacement keys can only be programmed by your Holden Dealer.
- If the vehicle's key is lost, inform your Holden Dealer immediately.

IMMOBILISER, HAZARD WARNING & PARK BRAKE cont.

Hazard warning



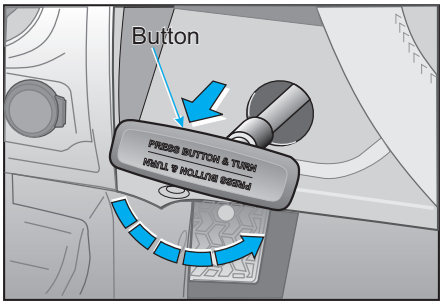
Press the switch located between the two centre air vents to turn the hazard warning flasher on and off. The hazard warning flasher works regardless of the ignition position.

When switched on, all turn signals will continuously flash.

Use the hazard warning flasher to warn other drivers any time your vehicle becomes a traffic hazard.

Use of the hazard warning flashers while the vehicle is moving is illegal in some States.

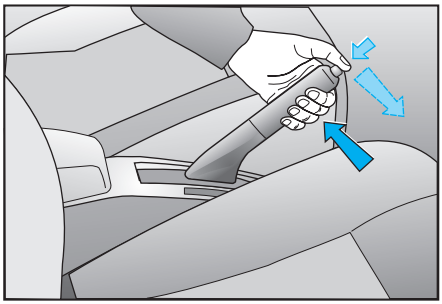
Park brake lever



WARNING

Never drive with the park brake applied, as this will overheat and damage the park brake.

Dash mounted type*: A ratchet type park brake lever is mounted to the left of the steering column. To apply the park brake, pull the lever out. To release the park brake, push the button in, turn the lever anticlockwise and then push it back into its home position.



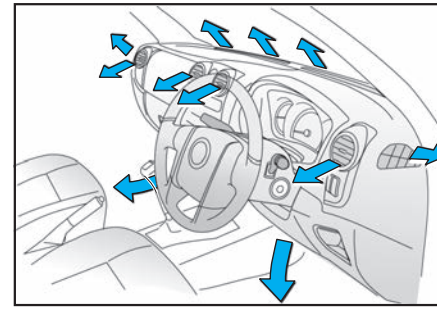
Console mounted type: The park brake lever is located between the front seats. To apply the park brake lever pull upward. To release the park brake, pull the park brake lever slightly upward, squeeze the release button and lower the park brake lever all the way down.

VENTILATION AND HEATING

Operation

The vehicle features a flow-through ventilation system for your comfort. Under reasonable conditions, it should not be necessary to open the windows at any time. Fresh air (when selected by the air source lever) is drawn into the vehicle through the grilles in front of the windscreen. Do not allow them to become clogged with debris, such as leaves or snow.

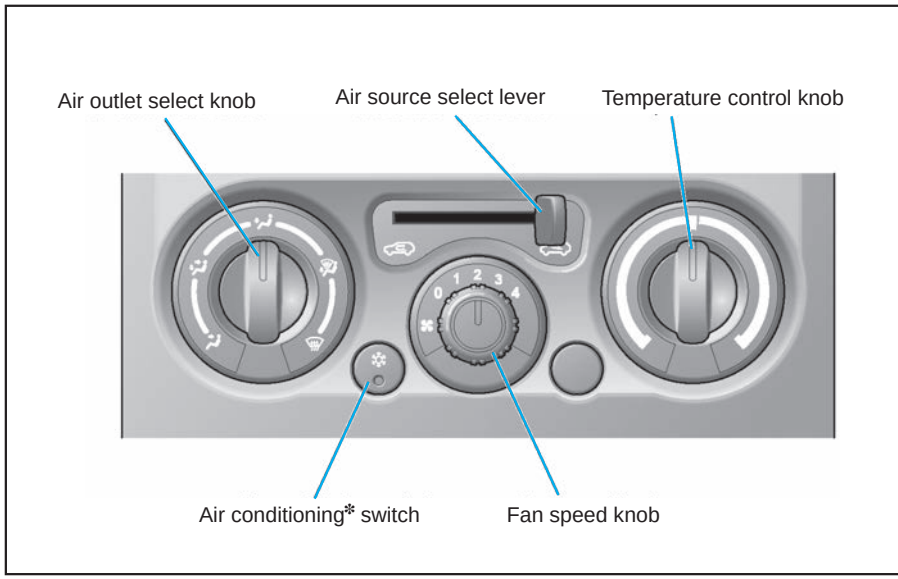
Outlets



The air can be directed by the air selector to five different outlets: window, demister, windscreen demister, floor and face level.

The four face level outlets on the instrument panel have adjustable vanes which may be swivelled up or down and left or right to allow directional control of the air flow.

The floor, window demister and windscreen demister outlets are fixed, as these direct air to the windows, windscreen or feet in the best possible way.



Ventilating and heating controls

HEATER CONTROLS

Air selector

Different vents are selected when the air selector is set in the following positions:

Air flows from the four face level outlets.

Cooler air flows from the face outlets and warmer air from the feet outlets, except when the temperature control is moved to its extreme right or left positions. In this case the air from the upper and lower vents is at the same temperature.

Air flows from the foot vents with a small amount from the window and windscreen demist outlets.

Air flows from the foot vents, side window demist and windscreen demist outlets.

Air flows from the side window demist and windscreen demist outlets.

Air source lever

Air intake source is selected when sliding the air source lever to the following positions:

Outside air is drawn into the vehicle.

Air within the vehicle is recirculated with the aid of the fan.

Note

- Recirculating the inside air for an extended time is not recommended; switch to outside air as soon as possible to renew the air.
- Do not use recirculation if occupants are smoking.

Temperature control

The temperature control regulates the temperature of the air entering the passenger compartment. Turn the control clockwise for warmer air and anticlockwise for cooler air.

Fan speed selector

The fan selector provides speed control of the blower fan.

0 Off.
1 Low.
2 Medium light.
3 Medium high.
4 High.

HEATER CONTROLS cont.

Air conditioning*

The air conditioning is operational when the engine is running and the fan is on.

Press the ❄ button, located on the ventilating and heating control panel to activate the air conditioning. Set the fan position to **1**, **2**, **3**, or **4** to begin air circulation. An indicator light will illuminate on the button when the air conditioning is in use. Turn the temperature control to the desired temperature.

Note

- To conserve fuel, switch off the air conditioner when it is not required.
- Once every two weeks, with the engine running, switch the air conditioner on for five to 10 minutes even in winter to lubricate seals.

Windscreen demisting

To demist the windscreen, air flows from the front demister outlets, with a small amount flowing from the side window demister outlets. To achieve this, move the air selector to , then select the air flow and air source required. If you require limited demisting, set the air selector to . Air flows from the foot vents simultaneously, with limited demisting.

Demisting can be accelerated in three ways: by the use of a higher air temperature, increased airflow or by activating the air conditioner*.

Note In high humidity conditions, operate the system for approximately 30 seconds before selecting to purge the air from the system.

Hot weather

For a quick cool down when first entering the vehicle on a hot day, switch on the air conditioner*, select , move the temperature lever to full cold and switch the fan to a high speed. Also, open the windows to allow the hot air to escape. After a minute or two, close the windows.

It is recommended that you select outside air after the interior cools down (10 to 20 minutes) to achieve and maintain best comfort conditions during extended driving.

The coolest temperature is achieved when recirculate is selected. This can be used in slow city traffic or when the vehicle is stationary in very hot weather. Occasionally select to allow outside air to enter the vehicle.

HEATER CONTROLS cont.

Performance/fuel economy

The air conditioner* uses power from the vehicles engine. Therefore, you will notice a small decrease in engine power, and a slight increase in fuel consumption, when the air conditioner is in use.

Cold weather

If the side windows or windscreen fog up on a cold day, switch on the air conditioner*, turn the fan switch to a high speed, select and select a warm setting with the temperature control. This will circulate warm, dehumidified air throughout the vehicle, demisting the windows.

Note The air conditioner not only reduces temperature but also reduces humidity and dust.

Automatic transmission

If your vehicle is stopped for long periods in hot weather with the engine running and the air conditioner* operating, place the automatic transmission into **N** or **P**.

Cigarette smoke

If occupants are smoking, it is recommended that is not used.

IMPORTANT

Once every two weeks, with the engine running, switch the air conditioner* on for five to 10 minutes even in winter to lubricate the air conditioner seals.

Dust

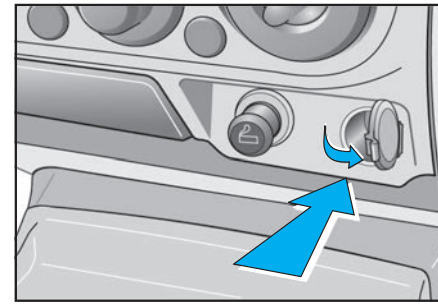
When following another vehicle on dusty roads, or to prevent exhaust fumes or odours entering your vehicle, select and close the windows.

When driving on unsealed roads but where the dust is not airborne, select (with the windows closed) and set the fan preferably on a high speed so that positive air pressure in the vehicle will prevent any dust entry.

ACCESSORY POWER OUTLET, LIGHTER AND ASHTRAY

Accessory power outlet

The accessory power outlet is located beside the cigarette lighter in the dashboard. To plug in auxiliary electrical equipment, flip the outlet cover open as illustrated and follow the installation instructions that are included with any electrical equipment you install. These circuits are protected by a fuse and have maximum current loads.



WARNING

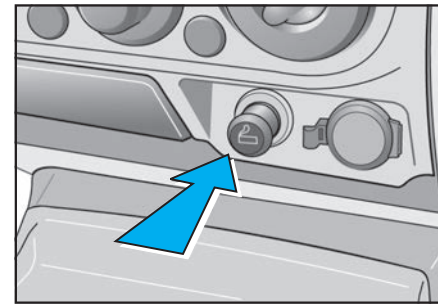
When using all accessory power outlets, the total maximum electrical load must not exceed 120 watts. Always switch off any electrical equipment when not in use. Leaving electrical equipment on for extended periods with the engine stopped will drain the battery.

Lighter

The cigarette lighter is operational when the ignition switch is turned to **ON** or **ACC**.

To operate the cigarette lighter, press the lighter knob in. When the element is hot the lighter automatically pops out, ready for use.

Note If the lighter does not pop out after 18 seconds, it is not operating and must be pulled out to the normal position manually. Do not attempt to use the cigarette lighter socket as a power supply.

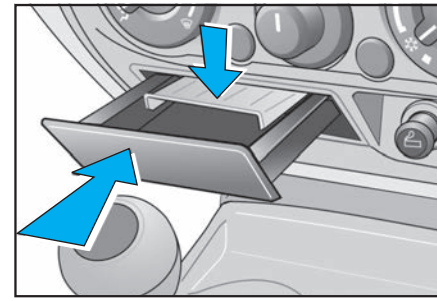


Front ashtray

Ashtrays should only be used for ash, not for combustible rubbish.

To empty the ashtray, pull open the ashtray, press the top plate down, and pull it out.

To install, insert the ashtray and push it fully in.



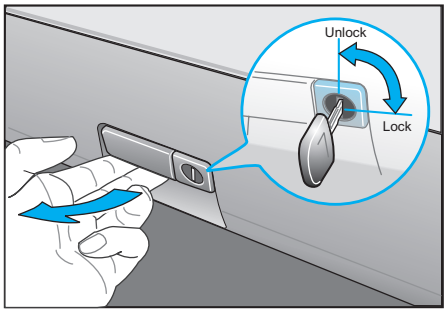
GLOVEBOX, UTILITY TRAY AND BONNET RELEASE

Glovebox

The glovebox is located on the passenger side of the dashboard.

The glovebox can be opened by pulling the handle. Push the lid shut to close the glovebox.

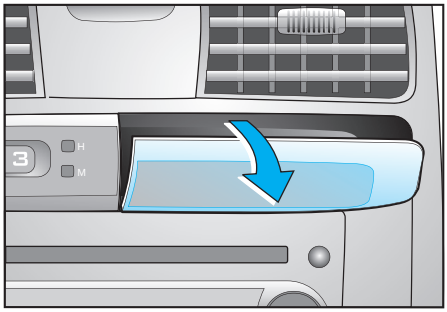
You can use the ignition key to lock the glovebox: turn the ignition key clockwise to lock, and anticlockwise to unlock.



Utility tray*

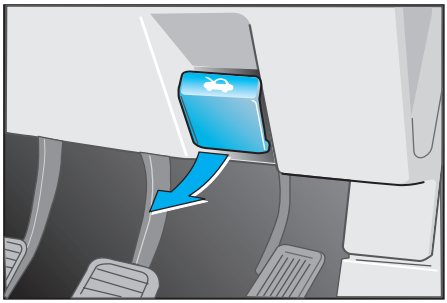
To pull out the tray, push the tray's lid, and then pull tray all the way backward.

To close the tray, push the tray's lid forward until it clicks.



Bonnet

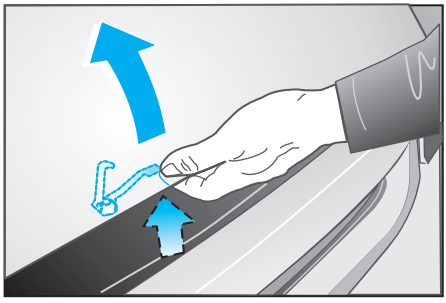
The bonnet lever is located inside the vehicle, under the driver's side of the dashboard. To release the bonnet pull the lever toward you. The bonnet releases but is prevented from opening fully by a safety catch.



To open the bonnet completely, reach in under the centre of the bonnet and move the safety catch upward, then raise the bonnet.

To hold the bonnet in the open position, insert the support rod into the slot provided.

Before closing the bonnet, return the support rod to its clip in the radiator grille. Allow the bonnet to drop from approximately 25 cm above its closed position. After closing it check that the bonnet has securely locked down.



*CRUISE CONTROL**

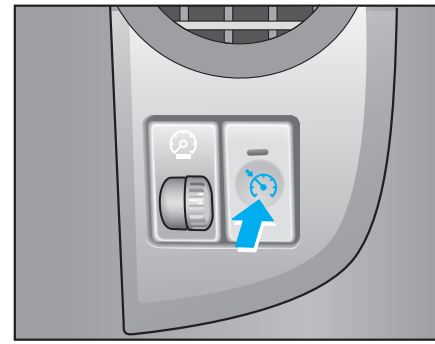
WARNING

- The cruise control can keep the vehicle at a preset speed without having to use the accelerator pedal. This is useful when driving on open roads where frequent deceleration and acceleration are not required. Cruise control does not operate at speeds below 40 km/h.
- Do not use cruise control when the road or driving conditions could require varying speeds. A constant speed is not practical in heavy or varying traffic or on winding, slippery or rough roads.
- With manual transmission, never attempt to move the gear lever without using the clutch pedal while the cruise control is maintaining vehicle speed. The resultant increase in engine speed may cause damage.
- Remember that when both the cruise control main switch indicator light and cruise set light are illuminated the cruise control is maintaining the vehicle speed. Releasing the accelerator pedal will not reduce vehicle speed.
- When driving up and down hills (particularly when towing) it is possible for the vehicle to gain or lose speed even though the cruise control is active. If this happens while going up a hill, apply the accelerator pedal to maintain the desired speed. If going down a hill, apply the brake pedal, which will both disengage the cruise control and reduce the vehicle speed within safe limits.
- If a malfunction has developed in the cruise control system, have the system checked and corrected by your Holden Dealer as soon as possible.

Cruise control main switch

The cruise control main switch is located to the right of the steering wheel, on the dashboard.

The indicator light illuminates to indicate that cruise control is ready for the desired speed to be set.



Cruise set indicator light: system active

The cruise set indicator light on the instrument panel (refer to *Dashboard layout* previously in this chapter) illuminates when the cruise control is maintaining vehicle speed.

Turning cruise control on

To turn the cruise control on, push the cruise control main switch. The indicator light illuminates.

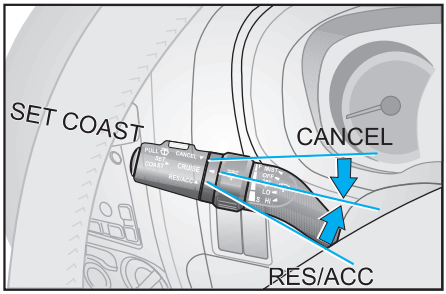
Note The cruise control must be switched on before a speed can be set, however, it remains inactive until a speed is set.

CRUISE CONTROL cont.*

Setting a desired speed

1. With the cruise control main switch on, apply the accelerator pedal until the required speed is attained.
2. Press the **SET/COAST** button, located on the end of the wiper/washer lever.

   The cruise set light on the instrument panel illuminates to indicate that cruise control is maintaining vehicle speed.
3. You can now remove your foot from the accelerator pedal. The vehicle speed will be maintained by the cruise control.



Accelerating

If you require a short burst of speed, to overtake another vehicle for example, apply the accelerator pedal. After passing the vehicle, release the accelerator pedal, the cruise control will then reduce vehicle speed to the previously set speed.

Increasing the speed setting

There are three ways to increase the speed setting:

- Rotate the end of the lever to **RES/ACC** for less than 0.6 second. Each time you rotate the lever to this position, the speed setting increases by 1.6 km/h.
- Rotate the end of the lever to **RES/ACC** and hold. The speed setting increases in steps until you release the lever.
- Use the accelerator pedal to attain the required speed, then briefly press the **SET/COAST** button on the end of the lever.

Decreasing the speed setting

Decrease the speed setting using either of the following methods:

- Press the **SET/COAST** button for less than 0.6 second. Each time you press this button, the speed setting decreases by 1.6 km/h.
- Press and hold the **SET/COAST** button. Release the button when the vehicle slows to the desired speed.

Note Cruise control deactivates if the speed decreases below 40 km/h or the **SET/COAST** button is used to reduce the cruise speed by more than 20 km/h.

CRUISE CONTROL cont.*

Restoring the previous speed setting

When the **SET/COAST** button has been used to reduce cruise speed, the last preset speed will be stored in the memory of the cruise control system. To restore the last preset speed, use the accelerator pedal to increase vehicle speed to within 20 km/h of the previous setting, then rotate the end of the lever to **RES/ACC** for less than 0.6 second.

Note If you hold the end of the lever in the **RES/ACC** position for more than one second, the previous speed memory is erased and the speed increases until you release the switch.

Deactivating cruise control

There are several ways to deactivate cruise control:

- Apply the brake pedal.
- Apply the clutch pedal (manual transmission).
- Shift the transmission lever to **N** (automatic transmission) after the vehicle has stopped.
- Select **CANCEL** on the cruise control lever.
- Press and hold the **SET/COAST** button to reduce the set speed by more than 20 km/h or until the vehicle speed is below 40 km/h.

Note The last preset speed is stored in the memory of the cruise control system.

Switching cruise control off

- Press the cruise control main switch off, on the dashboard (light off).
- Stop the vehicle and switch **OFF** the ignition.

Note If cruise control senses a system fault, it will switch off. For example, if climbing a steep hill when a constant speed cannot be maintained.

CHAPTER 2

Locks

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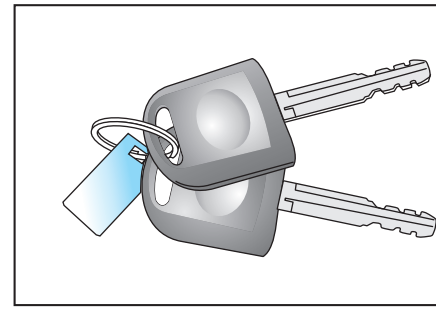
*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

KEYS AND KEYLESS ENTRY

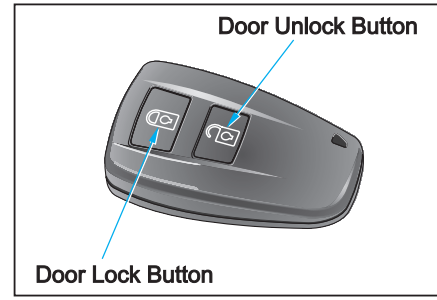
Keys



The code number for the keys is stamped on the key plate, which is attached to the key ring. Record the key number, remove the key plate and keep the number and the key plate in a safe place – not in the vehicle.

In the event of the original keys being lost, any additional or replacement keys must be purchased from and programmed by your Holden Dealer, using your key code number.

Remote control entry



The range of the remote control unit may be reduced due to shadowing and reflection of the radio waves. To operate the remote control unit, direct it at the vehicle and press the required button.

It is recommended that the central locking system always be operated using the remote control unit.

Treat the remote control unit with care; it should be protected against moisture and should not be operated unnecessarily.

The hazard warning lights flash briefly to show that the remote control is operational.

To unlock the vehicle:

Press the button on the remote control unit. The hazard warning lights flash briefly and the doors unlock.

WARNING

If a door is unlocked using its snib button after the vehicle has been locked using the remote control, the remote control will not lock the vehicle unless it is first used to unlock the doors.

To lock the vehicle:

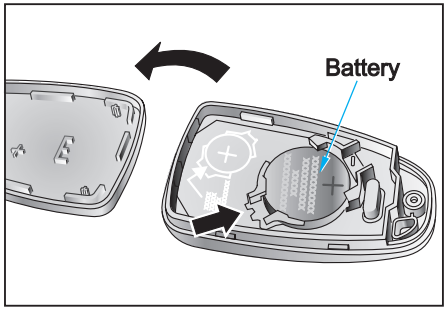
Press the button on the remote control unit. The hazard warning lights flash briefly and the doors lock.

Note If the remote control unit cannot unlock the central locking system, this maybe due to the following reasons:

- The voltage of the remote control battery is too low. Change the battery in the remote control unit.
- The remote control unit may have been operated too many times in succession outside the vehicle's reception range (e.g. too far from the vehicle). Synchronise the remote control.
- There may be interference from high-power radio waves from other sources.

KEYS AND KEYLESS ENTRY cont.

Replacing the battery in the remote control unit



Replace the battery as soon as the range of the remote control consistently starts to reduce, as follows:

Note The battery change must be performed within 3 minutes, otherwise the remote control will have to be synchronised.

1. Use a Phillips screwdriver to remove the small screw on the rear of the remote control housing.
2. Remove the battery cover, as illustrated.
3. Use a flat-blade screwdriver to prise out the battery in the direction of the arrow, as illustrated.
4. Remove and dispose of the spent battery in accordance with environmental protection regulations.
5. Install the new battery ensuring that it is inserted correctly. Refer to *Specifications* in chapter 8.
6. Install the battery cover; it should engage audibly.
7. Replace the small screw.

Synchronising the remote control

If the event of a malfunction, synchronise the remote control as follows:

1. Switch the ignition on. The system will remain in synchronising mode for 30 seconds.
2. While inside the vehicle, press either the button or the button on the remote control unit.
3. The central locking system locks and unlocks to show that the remote control has been synchronised.

Note Synchronising the remote control may be required if the battery is removed from the key for more than 3 minutes.

WARNING

The remote control unit is built up of precision electronic parts. To help avoid transmitter trouble:

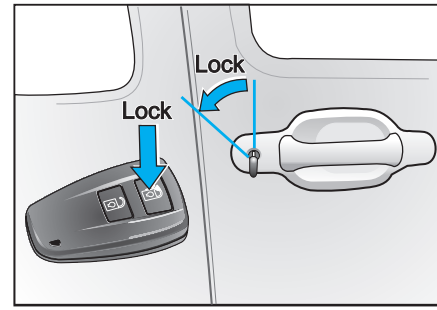
- Do not leave the remote control unit in direct sunlight or on the dashboard.
- Do not treat the remote control unit carelessly.
- Do not allow the remote control unit to get wet.

KEYS AND LOCKS

Central locking system

To lock:

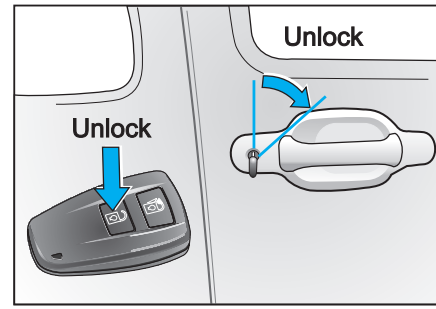
Press the button on the remote control unit or turn the key in the driver's door lock toward the rear of the vehicle. Allow the key to return to its vertical position for removal.



To unlock:

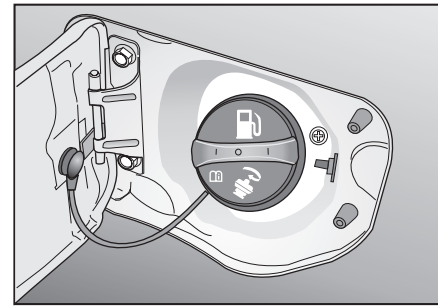
Press the button on the remote control unit or turn the key in the driver's door lock toward the front of the vehicle. Allow the key to return to its vertical position for removal.

Note If the system is overloaded as a result of repeated operation at short intervals, the power supply is cut off for approximately 30 seconds.



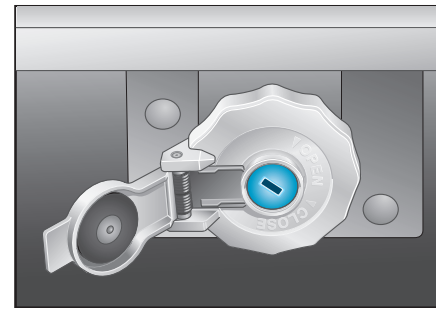
Fuel filler door*

Refer to *Fuel filling* in chapter 5.



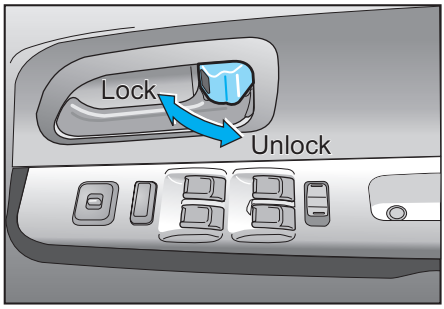
Fuel locking cap*

Lift up the cover over the fuel filler cap lock. Use the ignition key to unlock the fuel filler cap.



KEYS AND LOCKS cont.

Door locks



The doors are unlocked when the lock knob is pulled out, and the red indicator on the door lock knob is visible. The door is locked when the lock knob is pushed in and the red indicator on the door lock knob is not visible.

The doors may be locked behind you by pressing the lock knob in when the door is open, then shutting the door while the door handle is pulled outward.

In addition, the front doors maybe locked or unlocked from the outside of the vehicle using the ignition key. Turn the key toward the rear of the vehicle to lock the doors and toward the front the vehicle to unlock the doors.

WARNING

Before driving, ensure that the doors are closed and locked, especially when young children are in the vehicle.

Electric door locks*

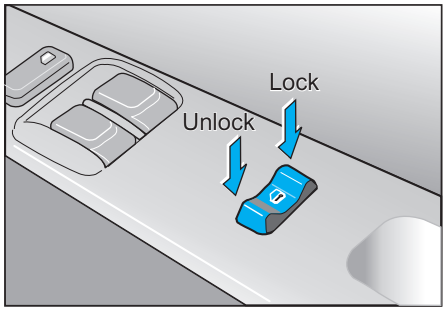
Electric door locks can be operated from the driver's door.

To lock the doors from outside of the vehicle, turn the key clockwise in the driver's door lock. To unlock the doors, from the outside of the vehicle turn the key anticlockwise in the driver's door lock.

All of the doors can be locked and unlocked while sitting in the vehicle, regardless of the ignition switch position.

Crew cab and space cab models:

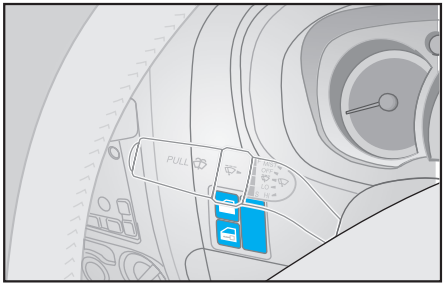
Press on the left-hand side of the toggle switch which is located on the armrest of the driver's door to unlock, or on the right-hand side of the toggle switch to lock.



Crew cab and space cab model

Single cab model:

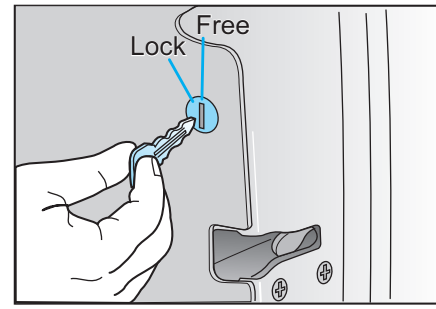
Press the button, located on the dashboard to the left of the steering column, to lock the doors. To unlock the doors, press the button again.



Single cab model

KEYS AND LOCKS cont.

Child proof safety lock*



The rear doors on the crew cab can be locked to prevent children from opening them from the inside.

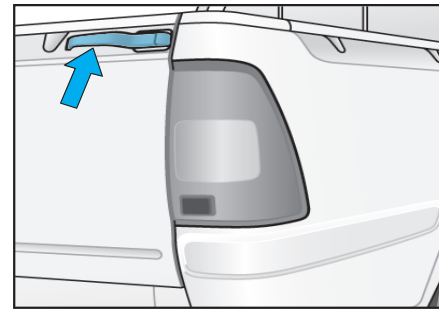
To engage the child lock, open the rear door and locate the child proof lock on the doors rear edge. Insert the ignition key into the slot, as illustrated, and rotate the top of key toward the vehicle as far as possible. Close the door. The door cannot be opened from inside, regardless of the lock knob position.

To disengage the child lock, open the rear door and insert the ignition key into the child proof lock's slot. Rotate the top of key away from the vehicle as far as possible. Close the doors.

WARNING

For safety, you should check if the lock is operating correctly by attempting to open the door from the inside after the lock has been engaged.

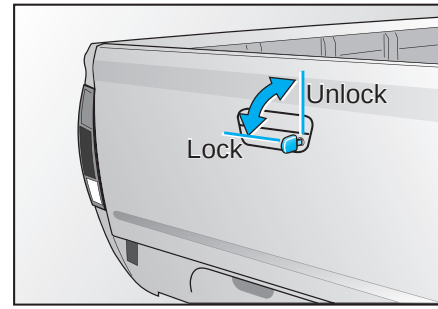
Tailgate side latches*



To open the tailgate, release the latch levers on both sides and lower the tailgate until the supports hold it level.

To close the tailgate, lift it up to its closed position and fasten both tailgate latches. Make sure both latches are securely locked.

Tailgate lock*



To lock:

Turn the key in the tailgate handle lock anticlockwise. Allow the key to keep its horizontal position and remove.

To unlock:

Turn the key in the tailgate handle lock clockwise. Allow the key to keep its vertical position and remove.

CHAPTER 3

Know your vehicle

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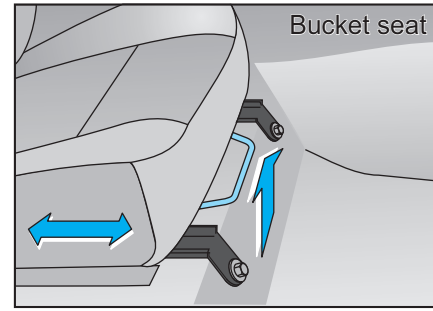
*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

SEAT ADJUSTMENT

Driver's seat

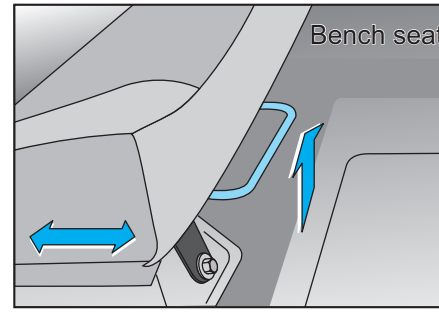


To move the seat forwards/backwards:

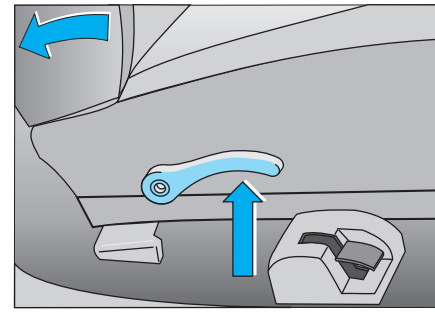
1. Lift up the bar at the front of the seat, to disengage the latch,
2. Slide the seat forwards or backwards,
3. Release the bar, to re-engage the latch.

Note Try to move the seat back and forth to check that the latch is fully engaged.

WARNING
Do not adjust the driver's seat when the vehicle is moving as the seat could move suddenly causing the driver to lose control.



Seatback reclining*



The back of the front seats can be adjusted as follows:

1. Sit in the seat.
2. Pull the lever on the door side of the seat upwards.
3. Adjust your weight against the seat-back until you reach the desired incline.
4. Release the lever.

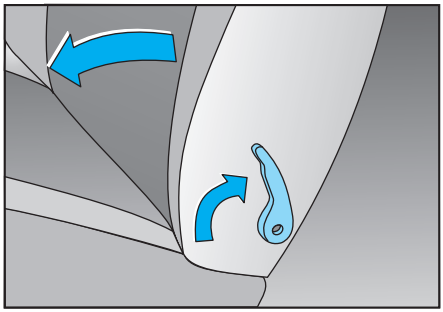
WARNING
To avoid reducing the effectiveness of seat belts, seat backs should only be semi-reclined when the vehicle is moving. The fully reclined position should only be used when the vehicle is parked.

SEAT ADJUSTMENT cont.

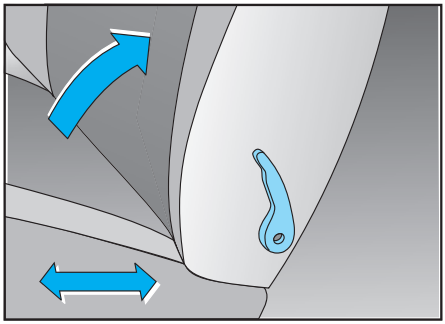
Walk-in system – space cab*

The passenger side seat features a walk-in system that allows the passenger side seat-back to fold down and the whole seat assembly to slide all the way forward.

To operate the walk-in system, push the reclining lever backward. Assist the seat moving forward to gain entry to the space behind the front seat.

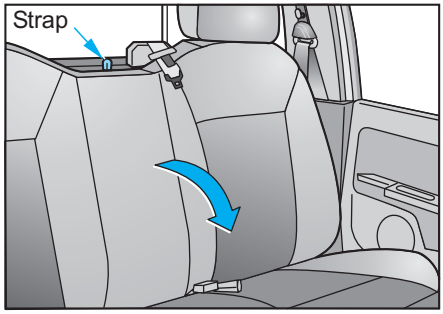


To return the seat to its original position, push the seat-back upright, then lift the lever at the front of the seat and slide it backward as required.



Lowering the rear seat – crew cab

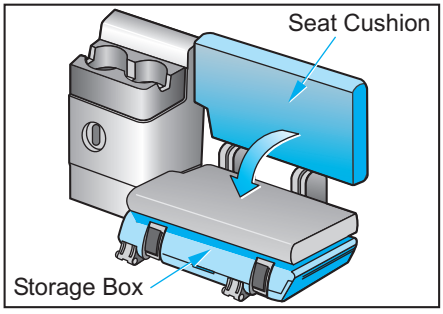
The rear seat in the crew cab model can be folded forward. To do this, pull on the strap located on the top of the centre rear seat.



Rear seat – space cab*

Assemble the rear seat as follows:

1. Fold the lid of the storage box into position and secure it with the storage box hooks.
2. Fold the seat cushion down on top of the storage box.



WARNING

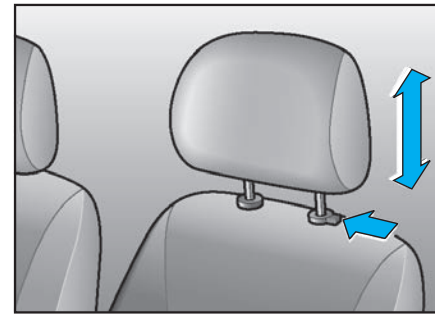
- Do not use the seat in the space cab unless approved seat belts are correctly fitted.
- Do not sit on this seat without the storage box being in position, as damage to the seat may occur.

HEAD RESTRAINT ADJUSTMENT

Adjusting the head restraints

To raise the height of the head restraint, lift the head restraint upwards.

To lower the height of the head restraint, push in the locking button at the base of the head restraint pole and push the head restraint downwards.

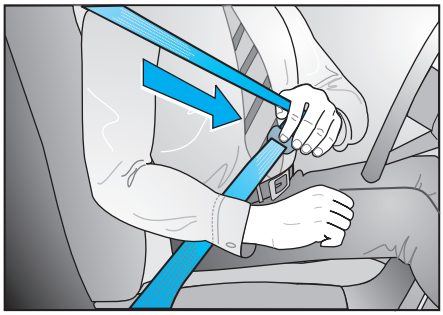


WARNING

- This safety feature is not intended as a headrest. It is solely for the reduction of whiplash neck movement in an accident involving your vehicle.
- The centre of the head restraint should be at eye level, never at neck level.
- Do not drive the vehicle with the head restraints removed, since it will increase the risk of a neck injury in the event of an accident.
- Do not attempt to adjust the driver's head restraint while the vehicle is in motion. This could cause a loss of control of the vehicle.

SEAT BELTS

Retractor belts



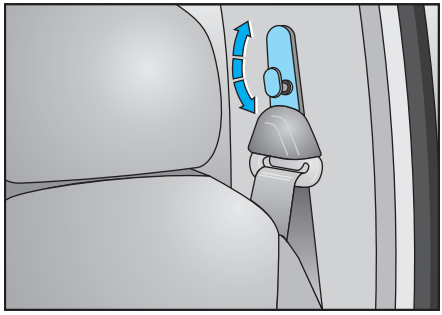
To put on the retractor seat belt, pull the metal tongue across your body and clip it into the buckle. When the metal tongue has locked safely into place you will hear a click. After fastening, settle the seat belt by running your hand under the seat belt starting at the hip, move your hand across to the buckle then up under the sash. Any extra seat belt length will retract automatically.

The lap section should be worn as low as possible across your hips, not on your waist. Ensure the sash and lap sections of the seat belt are free from twists and fit firmly.

Note The emergency-locking retractor allows you to move freely while the vehicle is travelling normally. The retractor locks the seat belt immediately on fast braking, impact with a solid object or any quick movement by the wearer.

To release the seat belt, press the release button on the buckle and allow the seat belt to retract. Check that it fully retracts without twisting or turning.

Seat belt height adjustment*



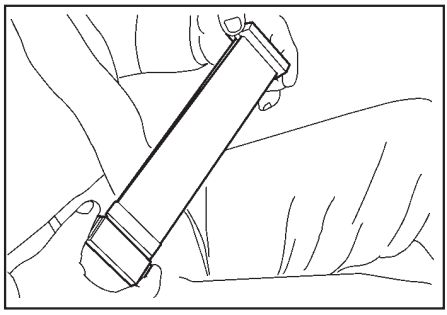
WARNING

Do not attempt to adjust the seat belt height while driving, because it could cause loss of control of the vehicle.

- Push the height adjustment knob in the direction you require.
- Slide the seat belt guide to the desired height.
- Release the seat belt guide at the required position and ensure the seat belt guide has clicked into position.

Adjust the height so that the seat belt passes over the wearer's shoulder and rests against the shoulder. It must not pass over the neck or upper arm. Shorter people should select a low seat belt guide position and taller people a higher one.

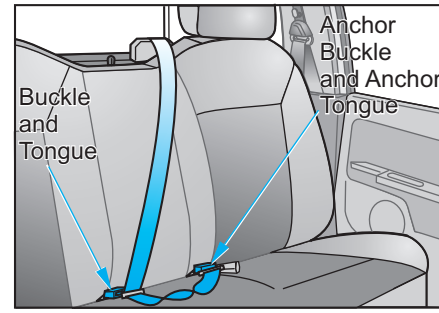
Lap belts*



Bring the latch plate adjuster across your body and push it into the buckle until you hear a click. Make sure the belts are fitted firmly across the lower hip area and not across your waist.

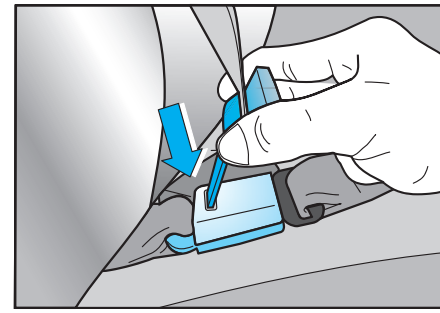
SEAT BELTS cont.

Centre rear seatbelt*



1. To prepare the rear centre seat belt for use, pull the shoulder portion of the belt down until the anchor tongue reaches the anchor buckle.
2. Press the anchor tongue into the anchor buckle until a distinct clicking sound is heard.
3. Pull the 2nd tongue across your body, press the second tongue into the 2nd buckle until it clicks into position.

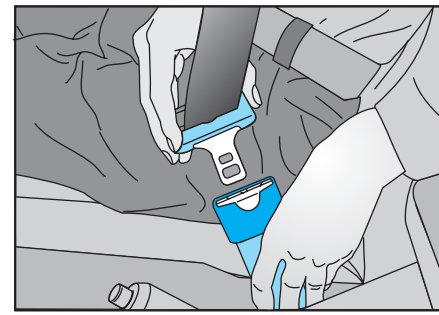
To release the anchor tongue from the anchor buckle, insert the tongue from one of the other belts into the release button slot on the anchor buckle and pull the anchor tongue free. Refer to the illustration.



WARNING

- The tongue must engage and lock inside the buckle for the seat belt to function properly.
- Ensure that the seat belt buckle and metal tongue are locked.

Non-retractor belts*



To fit the seat belt, sit up straight and well back in the seat. Bring the metal tongue adjuster across your body and clip it into the buckle. When the metal tongue has locked safely into place you will hear a click. Ensure the seat belt fits firmly across the lower hip area and not across your waist.

To shorten the seat belt, tilt the tongue adjuster away from your body and pull the seat belt through the seat belt adjuster.

To lengthen the seat belt, tilt the tongue adjuster away from your body and pull the seat belt from just below the finger grip bar. To release the seat belt, press the release button on the buckle.

SEAT BELTS cont.

Maintenance of seat belts

Check the seat belts regularly. Replace the seat belts if they become frayed or damaged. The buckle and retractor mechanism operations should also be checked. Your Holden Dealer will regularly do these things as part of the scheduled maintenance plan.

The seat belts must be replaced if they have been in use during a severe impact, even if there is no obvious damage.

Clean the seat belts only with a solution of mild soap and lukewarm water. Never use bleach.

WARNING

- Seat belts are designed to bear upon the bony structure of the body, and should be worn low across the front of the pelvis or the pelvis, chest and shoulders, as applicable; wearing the lap section of the belt across the abdominal area must be avoided.
- Seat belts should be adjusted as firmly as possible, consistent with comfort, to provide the protection for which they have been designed. A slack belt will greatly reduce the protection afforded to the wearer.
- Care should be taken to avoid contamination of the webbing with polishes, oils and chemicals, and particularly battery acid. Cleaning may safely be carried out using mild soap and water. The belt should be replaced if webbing becomes frayed, contaminated or damaged.
- It is essential to replace the entire assembly after it has been worn in a severe impact even if damage to the assembly is not obvious.
- Belts should not be worn with straps twisted.
- Each belt assembly must only be used by one occupant; it is dangerous to put a belt around a child being carried on the occupant's lap.
- No modifications or additions should be made by the user which will either prevent the seat belt adjusting devices from operating to remove slack, or prevent the seat belt assembly from being adjusted to remove slack.

Child restraints

If you are travelling with children in the vehicle, child restraints are required. Refer to *Child restraints* further on in this chapter.

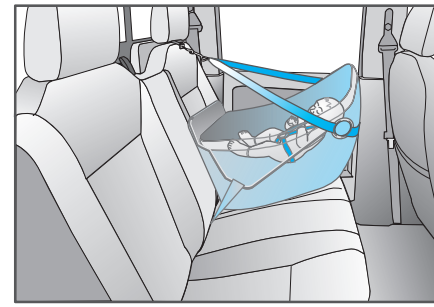
WHICH TYPE OF CHILD RESTRAINT FOR YOUR CHILD?

Children should be restrained at all times and fitted with a child restraint appropriate to their size when travelling in a vehicle. Following are some guidelines about selecting the appropriate restraint for your child.

Infants

Rearward facing infant capsule	
Weight	Height
Up to 9 kg*	Up to 70 cm*

Designed so that in the event of a collision, impact forces will be evenly spread over the baby's back, with minimal jarring to the vulnerable head and neck area.

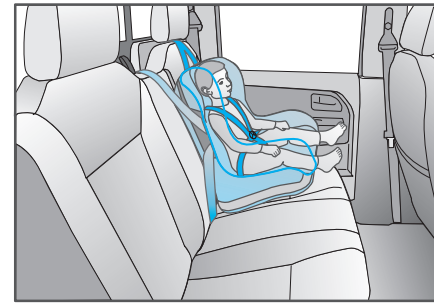


Rearward facing infant capsule

Young children

Forward facing child seat	
Weight	8 to 18 kg*

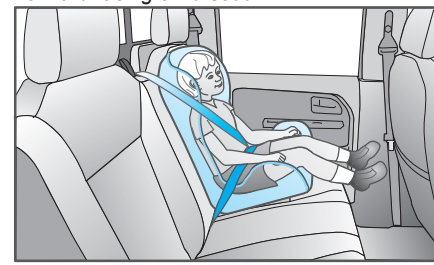
For use when the child is able to sit and easily hold his or her head upright. It is also possible to purchase convertible seats which can be used as a rearward facing child restraint or converted to a forward facing child seat.



Forward facing child seat

Booster seat with lap/sash seat belt	
Weight	14 to 26 kg*

When children outgrow a typical forward-facing child seat but they are still too small for lap/sash seat belts. A booster seat raises the child so that the knees bend comfortably, the lap/sash seat belt is correctly positioned and the child can see out the window. A rigid booster seat with a back, side wings and sash guide gives the best protection. In assessing the range of children who would benefit from booster seats, height is a better indicator than age or weight.

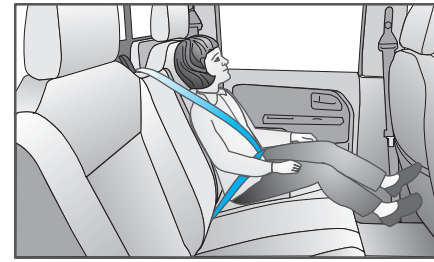


Booster seat with lap/sash seat belt

Older children

A child should use a normal lap/sash seat belt only when:

- he/she can sit against the back of the rear seat with knees bent comfortably at the edge of the seat,
- lap belt rests low and snug across the hips – not across the stomach,
- the sash belt is centred on the shoulder and chest,
- he/she is able to stay seated like this for the entire trip.



Adult lap/sash seat belt

**According to AS/NZ 1754:2004*

CHILD RESTRAINTS

WARNING – EXTREME HAZARD

- Do not use a rearward facing child restraint on a seat protected by an airbag in front of it.

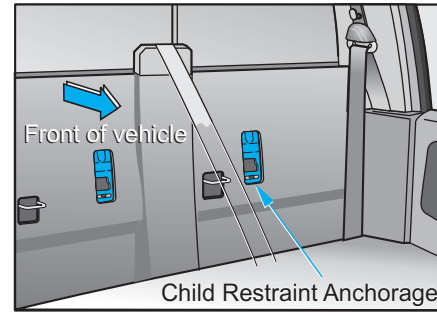
  The child could be seriously injured if the airbag inflates, as the child's head would be very close to the inflating airbag.
- Remember that it is safest for children to be seated in the rear seats.

WARNING

- Always ensure that the seat belt fits firmly around the child restraint.
- If a child cannot see out of the window, do not raise him/her by means of an ordinary cushion. It will not stay in place in a collision and the child can slip out of the straps and become entangled.
- Child restraint anchorages are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts, harnesses or for attaching other items or equipment to the vehicle.
- Only child restraints that have clips to attach to the vehicles anchorage fitting (as shown in the following illustrations) are to be used. Earlier types of child restraints may not attach securely to this type of anchorage.
- Use only Standards Australia approved child restraints and harnesses. Only purchase a child restraint which carries the appropriate Standards Australia sticker of approval.
- Where legally allowable, you may install a forward-facing child restraint in the front seat, but always move the passenger's seat as far back as it will go. The forward facing child restraint must still be attached to the left hand child restraint anchorage point, located behind the rear seat.
- Remember, it is safest for children to be seated in the rear seat.

CHILD RESTRAINTS cont.

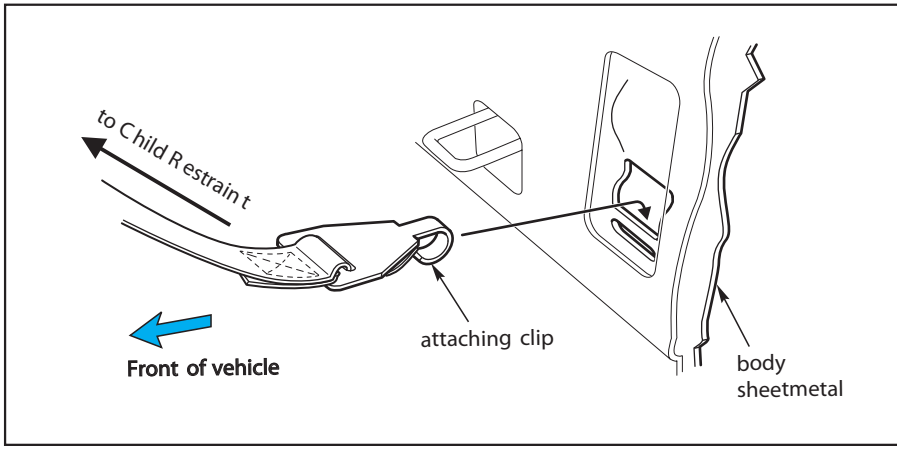
Crew cab models are fitted with three child anchorage locations: on the panel behind the rear seats (two are illustrated). Fold the rear seat forward to access these. The child restraint attaching clip fits directly on to the body sheet metal.



Anchorage fittings

The illustration shows how to install an attaching clip to an anchorage point.

Note If unsure about installing a child restraint attaching clip, please contact an approved restraint fitting station or your Holden Dealer.



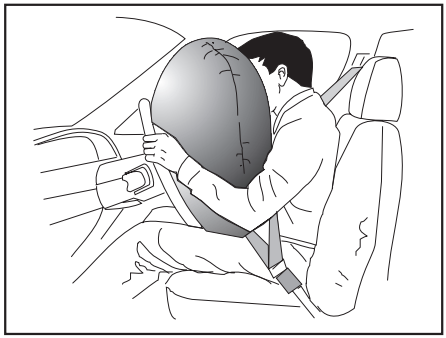
*AIRBAGS**

Operation

If the vehicle is fitted with an airbag system the letters **SRS** (Supplemental Restraint System) are shown on the steering wheel. This means that two airbags are fitted, one for the driver and another for the front passenger. They operate as a pair and are deployed simultaneously.

An operating noise may be heard and a small amount of smoke-like gas is released. The gas is harmless and does not indicate malfunction or fire.

The airbags will then deflate – the whole process will only take a moment.



WARNING

- Airbags are part of the 'Supplemental Restraint System (**SRS**)' as they assist, but do not replace seat belts. Airbags do not deploy in every accident. Various factors dictate whether they deploy including speed, angle of collision and object hit. Airbags are not designed to inflate if the vehicle is hit from the rear or is involved in a rollover. Seat belts must be worn by all passengers whenever the vehicle is moving.
- Airbags inflate with great force. If you are too close to an inflating airbag it may cause injury. Seat belts help keep you in position for airbag inflation in the event of a collision.

An impact caused by dropping into a large pothole or depression in the road may or may not deploy the airbags. Seat belts (by law) must be worn by all passengers whenever the vehicle is moving.

The **AIRBAG** warning light on the instrument panel flashes 7 times when the ignition is switched on. This is to indicate that the airbags are operational. If the light does not flash when the ignition is switched on, or if it illuminates when driving, this may indicate that there is a fault in the airbag system. Consult your Holden Dealer as soon as possible.

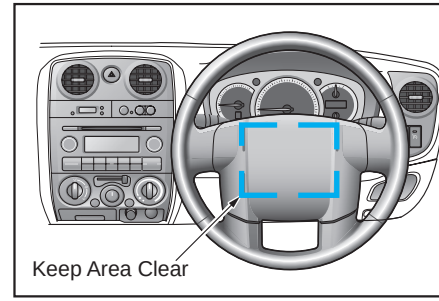
If the airbag system is handled incorrectly it can be set off for up to 15 seconds after the ignition has been switched off and the battery disconnected, and cause injury. Follow proper service procedures and make sure that the person performing the work for you is qualified to do so.

After activation the whole airbag system will have to be replaced.

The system should also be inspected by your Holden Dealer if the steering wheel or dashboard area is scratched, cracked or damaged.

AIRBAGS cont.*

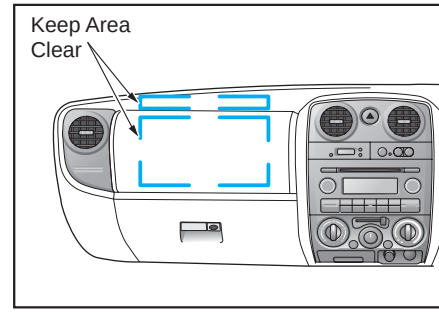
The driver's airbag is stored inside the steering wheel. AIRBAG is stamped on the steering wheel and a label is attached under the driver's side sun visor.



WARNING

- The horn pad must not be covered with adhesive or any other material.
- The driver should adjust the seat as far rearward as possible while still maintaining control of the vehicle.

The front passenger's airbag is stored in the dash panel. The wording AIRBAG above the glovebox and a label attached under the sun visors indicate that a passenger airbag is fitted.



WARNING

- Do not place any objects on or over the dashboard or between an airbag and yourself.
- Do not hang anything from the sun visor or mirror.
- Passengers must not rest their feet on the dashboard.

Extensive design and testing has gone into the airbag system. It should however, be treated with respect. Any careless or unskilled interference with the system could lead to its failure or to accidental inflation. It is recommended that any work to the electrical system, steering column, dashboard area, steering wheel or airbag system be carried out by your Holden Dealer.

Bull bar

Fitting a bull bar, or making other modifications to the front of the vehicle, may change the impact speed which would normally cause the airbag to inflate, reducing its effectiveness. Bull bars should not be fitted to vehicles operating in suburban areas, as they increase the risk of injury to a pedestrian in the event of a collision. Bull bars are only recommended for country or outback areas, where additional protection from straying animals is required. Please remember that defensive driving and limiting driving speed to the road conditions is always the best approach, particularly where road side signs indicate wildlife is abundant.

AIRBAGS cont.*

Passenger airbag and child restraints

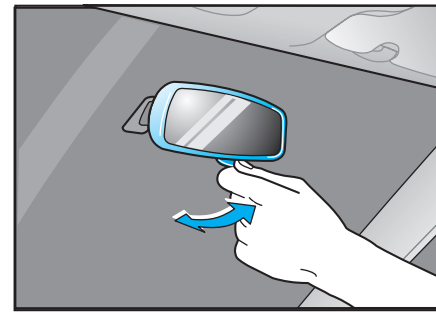
WARNING – EXTREME HAZARD

- Do not use a rearward facing child restraint on a seat protected by an airbag in front of it.

  The child could be seriously injured if the airbag inflates, as the child's head would be very close to the inflating airbag.
- Remember that it is safest for children to be seated in the rear seats.
- For information about fitting a child restraint, refer to *Child restraints* previously in this chapter.
- Do not touch any airbag system components or wires.
- The wires can be identified by yellow tape wrapping or yellow tubing and the connectors are also yellow.
- Scrapping a vehicle that has an undeployed airbag can be hazardous. Ask your Holden Dealer for assistance.

REAR VIEW MIRRORS

Inside rear view mirror



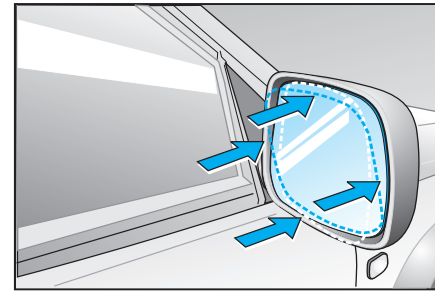
Push the lever on the lower edge of the mirror forwards (away from you) and then adjust the position of the mirror.

To reduce headlight glare from following vehicles, pull the lever backwards (towards you).

Note The rear view clarity is reduced when the mirror is set to the anti-glare position.

Return the lever back to its original position as soon as the glare has disappeared to restore the rear view.

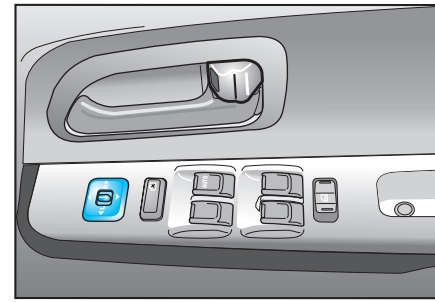
Outside rear view mirrors



Adjust the outside rear view mirrors so you can see not only each side of the road behind you, but also each side of your vehicle. This helps you determine where you are in relation to objects seen in the mirror.

When selecting the most suitable angle, ensure the driver's head is in the normal position for driving, then adjust the mirror angle to suit.

Electric rear view mirrors*



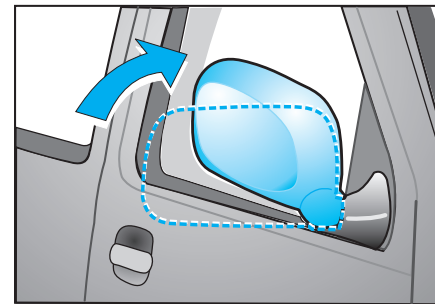
The adjustment switches for the electric mirrors are located on the driver's door and are operational when the ignition switch is turned to **ON** or **ACC**.

Note Moving the glass of the mirrors forcibly by hand will damage the electric mirror drive system.

Push the selector switch to the left to move the left mirror, or to the right to move the right mirror. Pushing the selector switch to the middle will disengage movement.

Push the edges of the square surrounding the selector switch to move the mirror up, down, left or right. It is not advisable to adjust the mirrors while driving.

Fold back

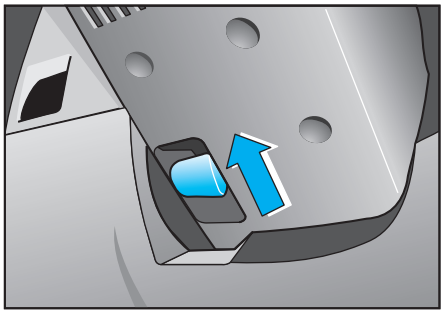


The exterior mirrors can be folded forward or rearward. When driving off road it is recommended that the mirror heads be folded rearward.

TILT STEERING AND WINDOWS

Tilt steering*

The tilt steering lever is located on the under side of the steering column and has six adjustment positions. To adjust the height of the steering wheel, pull the lever toward you, this will unlock the steering column. Move the steering wheel to the desired height, then release the lever. Try moving the steering wheel up and down to ensure it is securely locked in position.

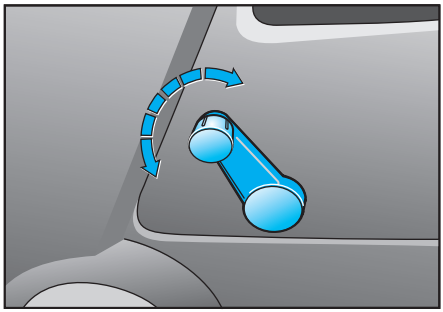


WARNING

As with all the other driver position controls, do not attempt to adjust the steering wheel while driving.

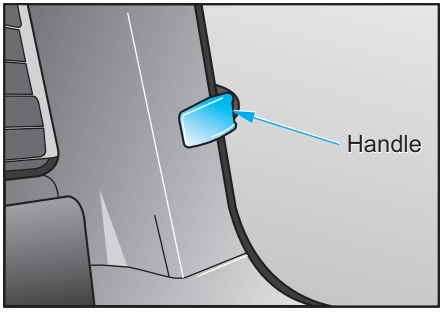
Window regulator handle

Turn the regulator handle to raise or lower the door windows.



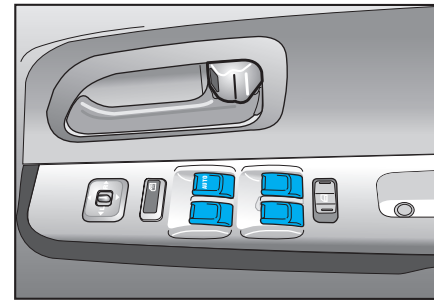
Quarter windows – space cab

The quarter window on each side can be opened and closed by operating the catch handle.



*POWER WINDOWS**

Power windows*



The main switches for the power windows are located in the driver's door. The front switches are for the front windows and the rear switches are for the rear windows*. Individual switches are located on the front passenger door and in the rear doors*.

The switches are operational when the ignition switch is in the **ON** position.

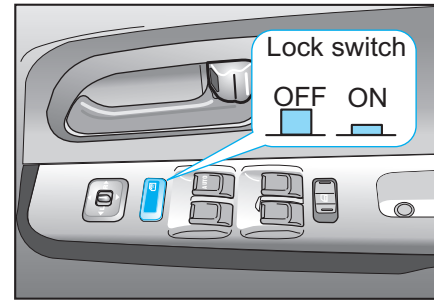
- To lower the driver's window, press and hold the switch down for at least half a second and then release.

  Press down again or pull up the switch to interrupt the automatic operation.

  Rock the button to open the window in short steps.
- To lower a passenger's window, press and hold the respective button down.
- To raise a window, pull and hold the respective button up.

  The window stops moving up as soon as the button is released.

The rear windows* can also be operated by individual switches located on the rear doors*.



The lock switch for the power windows is located on the driver's door armrest.

When the lock switch is in the ON position the passenger's are not able to operate their own window. Press the lock switch again and the passenger's power window will be unlocked.

WARNING

- To assure the safety of children and others, ensure that all passengers have their hands, etc. clear of the windows.
- Remove the key when leaving the vehicle, to avoid unintentional window operation by children.
- Ensure the door lock switch is in the ON position when children are in the vehicle.

INTERIOR LIGHT AND ROOF CONSOLE WITH MAP LIGHTS

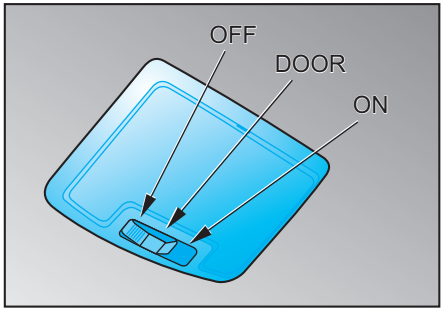
Interior (dome) light

The dome light is located in the centre of the roof and is operational regardless of the ignition switch position.

DOOR The light switches on when a door is opened and switches off when all the doors are closed.

ON The light switches on regardless of the door position.

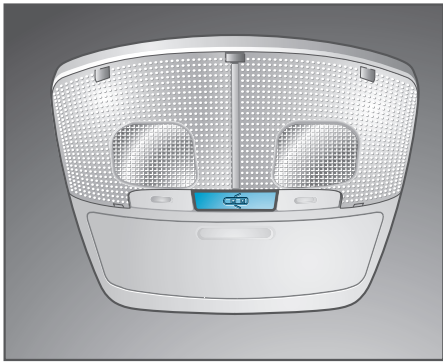
OFF The light remains off.



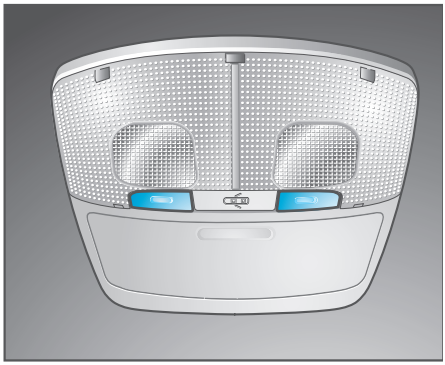
Roof console with map lights*

The roof console and map lights are located between the two sun visors.

If the centre switch is not pressed, it allows both the map lights to be switched on when a door is opened.



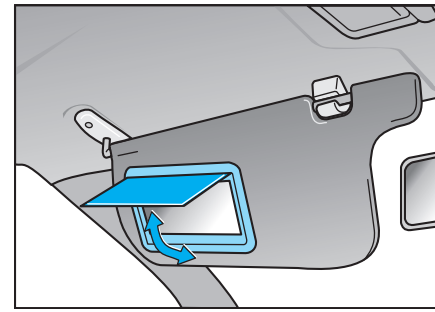
Pressing either of the map light switches will switch the corresponding light on and off.



VANITY MIRROR, ASSIST GRIP & SUNGLASSES HOLDER

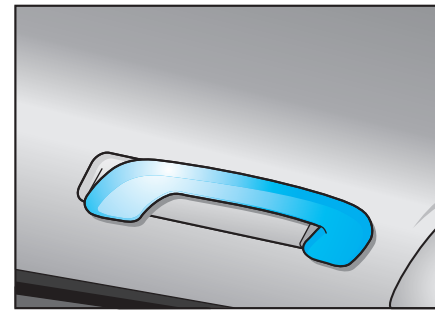
Vanity mirror*

The vanity mirror is located on the rear side of the passenger's sun visor.



Assist grip*

Assist grips are located above the front and rear passenger doors.

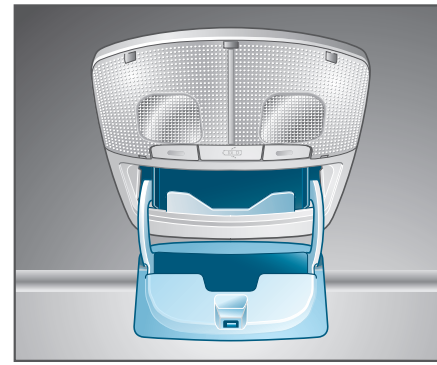


Sunglasses storage*

The sunglasses holder is located in the roof and is designed to accommodate one pair of sunglasses.

To open, push in the rear of the lid and release it.

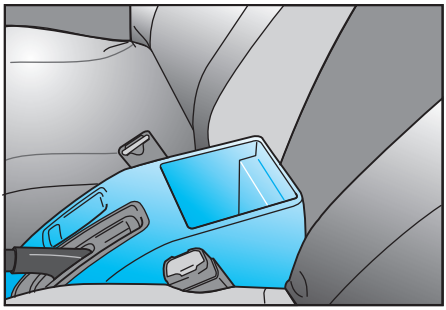
To close, swivel the holder back to its original position and press in the rear of the lid to engage the latch.



CENTRE CONSOLE AND REAR ASHTRAY

Centre console*

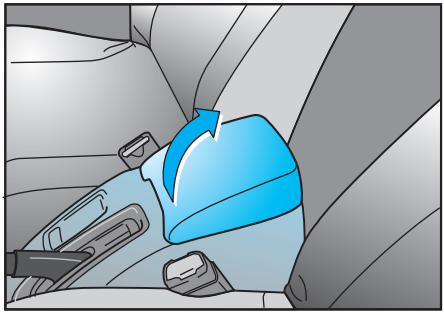
The centre console is located between the two front seats.



Centre console with armrest*

Lift the front edge of the armrest to open the storage compartment.

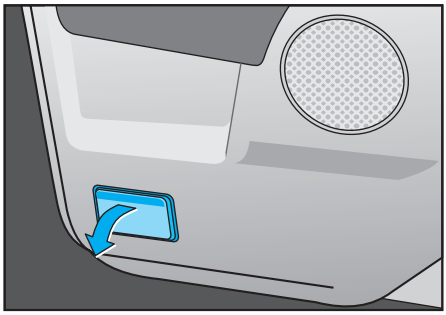
The armrest opens to a near vertical position and should not be forced any further backward.



Rear ashtrays*

The rear ashtrays are installed on the inside of the rear doors.

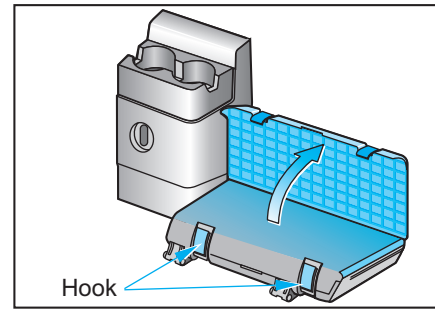
To remove the ashtray, open it and press the retainer spring down. Pull out the ashtray.



STORAGE BOX AND ANTENNA

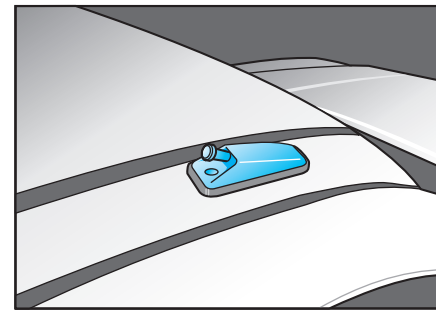
Storage box – space cab

A storage box is provided in the space cab model behind the front seats. To open the storage box lid, release the hooks and open the cover, as illustrated.



Antenna

The radio antenna is located on the roof of the vehicle, above the driver's door. Pull out the antenna to gain stronger radio reception.



CHAPTER 4

Driving

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*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

SAFETY

Before entering the vehicle

1. Check that the windows, mirrors and lights are clean.
2. Visually check tyre inflation.

   Note check the tyre pressures each week.

Before driving off

1. Ensure that all doors are closed and secured.
2. Position your seat for comfortable driving.
3. Adjust rear view mirrors.
4. **Fasten seat belts**.
5. Check that the warning indicators light up when you turn the key to start the engine. Refer to *Warning/indicator lights* in chapter 1.

   Automatic only: Have the ignition on and depress the brake pedal before moving the T-bar away from the **P** position.

Parking

1. Apply the park brake.
2. Manual transmission: Place in reverse or first gear.

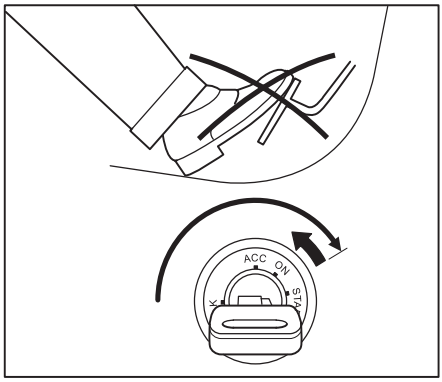
   Automatic transmission: Place in **P** (park) position.
3. Shut all windows.
4. Switch off all exterior lights.
5. Turn the ignition key to **OFF** and remove the key.
6. Lock all doors.

WARNING

- To avoid the possibility of injury, always fully apply the park brake before exiting the vehicle.
- With the ignition switch in the **ON** position, check if the 4WD indicator light , the **4L** indicator light, and the **CHECK 4WD** indicator light are either on or off (not blinking). If one or more of the indicator lights are blinking, the vehicle may roll down a steep incline. If your vehicle is equipped with an automatic transmission, ensure the shift lever is fully engaged in the **P** (park) position.
- Be careful where you park or drive. As with any vehicle, do not park or operate this vehicle in areas where combustible materials such as dry grass or leaves can come in contact with the hot exhaust system.
- Never leave the engine running in an area such as a closed garage or underground car park.

PETROL ENGINE STARTING

Starting the engine



1. Apply the park brake firmly and release it only after you have started the engine and are ready to drive away.
2. **Manual**: Depress the clutch pedal in fully and move the gear selector lever to the **N** (neutral) position. The clutch pedal can now be released.

   Automatic: Move the shift lever to the **P** (park) or **N** (neutral) position. The engine will not start if it is in any other position. As a safety precaution, you should have your foot on the brake pedal in order to shift the transmission lever out of the park position.

   Note The ignition switch cannot be turned to **OFF** and the key cannot be removed when the shift lever is out of the **P** (park) position.
3. Start the engine as outlined below:

   For cold or hot starting the procedure is the same. Do not touch the accelerator pedal. Simply turn the key to the **START** position, and release when the engine has started.

   If the engine does not start in 10 seconds, wait another 15 seconds to let the starter motor cool down. Turn the key to **START** again with the accelerator pedal pushed completely down to the floor for a maximum of 10 seconds. If the engine still does not start, release the key and pedal. Wait another 15 seconds and then repeat the entire procedure. If the engine still fails to start, contact your Holden Dealer.

PETROL ENGINE WARNING

When trying to start the engine, do not hold the key in the start position for any extended time, for if unburnt fuel were to reach the catalytic converter and ignite, the catalytic converter could overheat or be destroyed by backfire.

Note You should not subject the engine to high load conditions (for example full throttle acceleration or high speeds) until it has completely warmed up. Otherwise, you may cause premature engine wear or engine damage.

DIESEL ENGINE STARTING

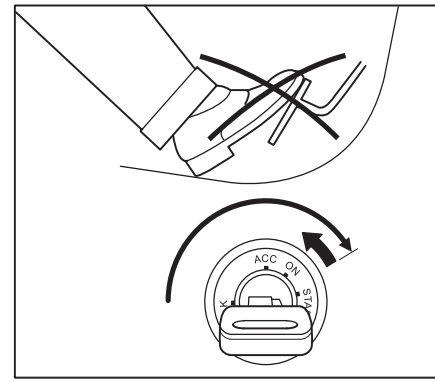
Glow plug indicator light

The diesel engine has a special starting system. It has small heating elements called glow plugs, which warm the engine for improved starting.

Turn the ignition switch to the **ON** position. The glow plugs will start warming the engine. The glow plug indicator light ෆ located on the instrument panel, will illuminate. Refer to *Warning/indicator lights* in chapter 1.

When the glow plugs have heated the engine enough for it to start (2 to 7 seconds when the engine is cold), the glow plug indicator light ෆ will extinguish. The engine is now ready to be started.

Starting the engine



1. Apply the park brake firmly and release only after you have started the engine and are ready to drive away.
2. **Manual**: Depress the clutch pedal fully in and move the gear shift lever to the neutral position. The clutch pedal can now be released.

   Automatic: Move the shift lever to the **P** (park) or **N** (neutral) position. The engine will not start if it is in any other position. As a safety precaution, you should have your foot on the brake pedal in order to shift the transmission shift lever out of the **P** (park) position.
3. Start the engine as outlined below:
   - For cold or hot starting the procedures are the same. Do not touch the accelerator pedal. Simply turn the key to the **START** position and release when the engine starts.
   - Do not keep cranking the engine for more than 30 seconds if the engine fails to start. Wait for 30 seconds before trying again. If the engine still fails to start, contact your Holden Dealer.

Turbo operating precaution, engine starting

Do not operate the engine above idle before normal engine oil pressure has been established (such as applying full throttle immediately upon initial start-up). This causes the turbocharger to operate at excessive speed before the bearings receive adequate lubrication. Operation of the turbocharger for a period as short as five seconds without sufficient oil can cause bearing failure.

DRIVING PRECAUTIONS

WARNING

The specific design characteristics of the Rodeo give it a higher centre of gravity than ordinary vehicles. Its high ground clearance makes it capable of performing in a wide variety of off-road applications. It is not designed for cornering at the same speeds as conventional passenger cars. Therefore, sharp turns or abrupt manoeuvres should be avoided at all times. As with other vehicles of this type, failure to operate this vehicle correctly may result in loss of control and/or vehicle roll over. Always wear your seat belts.

Running-in

These days, there is no need to follow the formal running-in schedule. However, by observing a few simple precautions during the first few hundred kilometres of driving you will greatly assist your vehicles future performance and economy.

For the first 500 km, do not exceed 90 km/h. Up to 1,500 km, avoid driving at any one speed, either slow or fast, for any length of time.

Include some higher speeds during this period. Always drive at moderate speed until the engine has completely warmed up.

For the first 500 km heavy braking should be avoided, except in an emergency, since brake misuse during this period could impair future braking efficiency.

It is best to drive your new vehicle for 1,500 km before towing a load. If you must tow before this do not exceed 80 km/h on good roads. No heavy off road towing should be attempted before 1,500 km.

Off-road

Following a period of off-road driving, particularly in wet weather, the front of the vehicle should be hosed down to clear any accumulation of mud. In particular, pay specific attention to both sides of the radiator.

Engine misfire warning

If the engine is misfiring, reduce the vehicle speed and do not attempt to tow a caravan or trailer, until the misfiring is corrected by the nearest Holden Dealer. Continued driving while the engine is misfiring could result in the catalytic converter and exhaust system overheating, resulting in vehicle damage.

Loose articles

Do not leave loose articles or luggage in the passenger compartment. Whenever possible, stow articles in the tray area.

WARNING

Gas cylinders can leak, creating a risk of fire or explosion. As a precaution, ensure adequate ventilation when carrying gas cylinders. They must be restrained from rolling around, and where possible, placed in the load area of the vehicle. It is recommended that if gas cylinders are frequently transported that a purpose built carrying compartment be used. Transportation of gas cylinders is regulated by legislation in some States.

DRIVING PRECAUTIONS cont.

Loading the vehicle

Loading the vehicle changes the mass distribution and therefore the handling of the vehicle when driving. After loading the vehicle, extra care should be taken to become familiar with the feel of the vehicle while driving. Refer to *Loading the vehicle* in chapter 9. Refer to *Tyres* in chapter 7 for information on tyre pressure when the vehicle is loaded.

Tyre grip

When driving on wet or slushy roads, it is possible for a wedge of water to build up between the tyre and road surface. This phenomenon, known as aquaplaning, may cause partial or complete loss of grip, which will affect the steering and braking of the vehicle. To reduce the possibility of aquaplaning:

- Reduce speeds during rainstorms.
- Replace tyres when tread wear indicators are visible.
- Regularly check that tyres are properly inflated.

Brakes

Power assisted brakes, which are fitted to your vehicle, utilise vacuum from the engine when it is running. Never let the vehicle run down steep inclines without the engine running. Never coast with the engine switched off.

A decrease in driving, cornering and braking traction occurs when water, snow, ice, gravel or other materials are on the road surface. Driving practices and vehicle speed should be adjusted to suit the road conditions.

Driving through water may affect performance. Applying the brakes lightly will indicate whether they have been affected. To dry them quickly, lightly apply the brakes while maintaining a slow forward speed with an assured clear distance ahead until brake performance returns to normal.

Brake pedal travel should not be obstructed by ill-fitting floor mats or any other material under the pedal which causes interference with normal pedal movement.

Your seat should be positioned so that you can push the brake pedal satisfactorily under all braking conditions.

Power steering

The steering system fitted to your vehicle is power assisted. It has been designed to reduce steering effort. Care should be taken not to hold a prolonged turning force on the steering wheel when the steering is at left or right lock when stationary (e.g. during parking manoeuvres) as this creates high operating temperatures and pressures within the system.

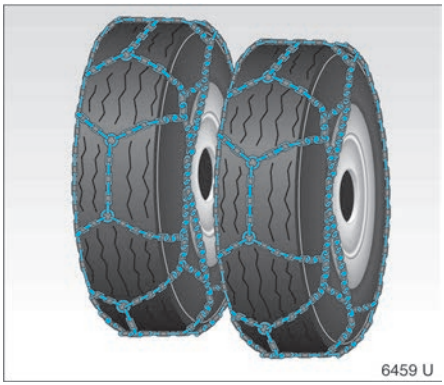
If the power assistance for the steering is not working, due to the engine stalling, etc, the vehicle can still be steered. However, due to the much greater effort required to steer, it is recommended that you have the problem fixed promptly.

DRIVING PRECAUTIONS cont.

Snow chains

When driving with or fitting snow chains, ensure the following are observed:

- Only use snow chains on the rear wheels.
- Snow chains may only be used at speeds up to 30 km/h.
- When driving on roads that are free of snow, snow chains should only be used for brief periods, as they will wear quickly and may snap.
- The part of the snow chain that covers the tyre tread should not be thicker than 13 mm. The part of the snow chain that wraps around the side of the tyre should not be thicker than 15 mm (including the chain clasp). The use of thicker chains may cause damage to the body of the vehicle.
- Be sure to install snow chains suitable for the tyre size, following the manufactures fitting instructions.



4X4 DRIVING PRECAUTIONS

Mobile phones and CB radios

Mobile phones and CB radio equipment, which use an integrated antenna, may temporarily affect the vehicles electronics (permanent damage is unlikely) when used inside the vehicle, due to the interference created when transmitting.

Therefore, mobile phones and CB radio equipment that use an antenna fitted to the outside of the vehicle, should be used whenever possible.

If phones or CB radios with an integrated antenna must be used inside the vehicle, care should be taken not to operate near the dashboard area.

Driving on sealed roads

WARNING

Do not use 4WD for normal driving on sealed roads. It will cause unnecessary noise, poor fuel consumption and stress 4WD components.

The increased traction of 4WD vehicles offers greater driving control in adverse road conditions, particularly heavy snow and ice. However, four-wheel drive vehicles are not skid-proof. It is usually easier to control a skid in a conventional car than a four-wheel drive vehicle, in the same circumstances.

When the conditions are severe enough to warrant engaging 4WD on sealed roads, remember the following:

- Drive slowly in the lower gears, according to the road and weather conditions.
- Use the accelerator pedal to control the vehicle.
- Keep the use of the brake pedal to a minimum.
- Do not slip the clutch or spin the wheels.
- Do not make excessive or jerky steering movements.
- Off-road 4WD vehicles have a higher centre of gravity, so always approach curves at an appropriate driving speed. Do not attempt to go as fast through turns as you might in a conventional 2WD vehicle. Likewise, strong crosswinds can affect the normal steering of the vehicle and could lead to loss of vehicle control. Drive slower under strong crosswind conditions.
- As with all driving, exercise caution when in slippery conditions (caused by sand, gravel, water, snow or ice on the road) in order to maintain vehicle control.
- When driving in snow or ice, select 4L or 4H (depending on the conditions); start the vehicle moving with minimal engine revs, low gear and combined clutch and accelerator control; do not slip the clutch excessively; change to a higher gear as soon as possible, keeping the engine revolutions low to prevent wheel spin.

4X4 DRIVING PRECAUTIONS cont.

Driving through water

When driving through water ensure the following is observed:

- Know the depth of the water; choose the lowest entry and departure angles before entering.
- Select **4L** and 1st gear; maintain a steady engine speed and avoid splashing to help prevent water from entering the exhaust system if the tailpipe is below the water level.
- Drive with the flow wherever possible. If you have to drive against the flow, try to drive at an angle to it so that the leading corner of the vehicle will help deflect the water from the engine compartment.
- Avoid splashing the water – if the ignition system becomes wet the vehicle may stall.
- Ensure the water does not enter the engine air intake system, as engine seizure and costly damage may result.
- Test the brakes after you have left the water. Wet brakes are less effective than dry ones. To dry the brakes faster, drive the vehicle slowly while applying light pressure to the brake pedal.
- After driving through water, perform the following checks for water contamination at the earliest opportunity:
  - Renew any lubricating oil that has a milky appearance, indicating contamination with water.
  - Check the air filter element.
  - Check the engine.
  - Check the transmission and the axles.
  - Check the interior of the vehicle.

Recovery and towing

When recovering or towing a vehicle off-road, observe the following:

- A greater force is required to move a vehicle from or through mud than when on a firm road surface. Ensure the steering wheel is centred.
- Attach the tow rope to the towing eye of the vehicle, not to the axle.
- Where possible, drive both vehicles forward to effect a recovery, using the appropriate gear to avoid excessive wheel spin.
- Avoid the use of reverse gear because of the possible resultant wheel spin.
- Stay clear of the tow rope. Breaking ropes can cause serious injury.
- Ensure tow rope is of sufficient strength.

4X4 DRIVING PRECAUTIONS cont.

Off-road driving

When driving off-road you will encounter various driving conditions too numerous to list here. Always think ahead and use common sense. If you feel uncomfortable about tackling a given situation, do not do it.

Gripping the steering wheel: Rough terrain can cause rapid and unexpected movement in the steering. Be ready to deal with these movements by having a firm grip on the outer rim of the steering wheel with the thumbs outside the spokes (to guard against injury from steering wheel kickback).

Preparation: The duration, distance and conditions of the off-road activity determines the extent of the preparation that is required. The following are given as guidelines:

- Know the area where you will be driving, either by inspection or from maps. Decide your route in advance.
- Make a thorough check of the vehicle: oil, water, fuel, brake and clutch fluid levels, drive belts, lights and windscreen wipers and washers.
- Ensure that the tyres (including the spare) are inflated to the correct pressure and are suitable for the prevailing off-road driving conditions.
- Off-road or mud and snow tyres, which are standard, have larger tread profiles designed to give better grip.
- Check the jack and wheel changing tools, and include a board or plate for supporting the jack on soft ground.
- Carry emergency equipment, i.e. spade, first aid kit, vehicle spares etc.
- A 13 metre tow rope should be carried to allow a recovery vehicle to be clear of adverse ground.
- Secure all loose items and luggage that may cause injury if thrown around the passenger compartment in bumpy conditions. Avoid carrying heavy loads on the roof. Make sure all doors, the tailgate and the bonnet are firmly closed.
- Avoid protruding objects (such as rocks or tree stumps) that may damage the underbody or tyres.
- Test the brakes after operating in mud to clear excess mud from the braking mechanisms.
- Use the fall-line of the slope or hill and set your vehicle to traverse this with the steering centred. Never drive diagonally across a slope.
- The ground clearance, ramp angle, angle of approach and departure, tilt angle and wading depth need to be considered, especially in hilly conditions and when wading, to prevent the vehicle becoming stuck and possibly damaged.
  - Approach angle 33°
  - Departure angle 20.5°
  - Ramp breakover angle 19°

4X4 DRIVING PRECAUTIONS cont.

Cleaning after off-road driving

Clean the vehicle thoroughly and as soon as possible after driving off-road, particularly after muddy conditions. For cleaning instructions refer to chapter 10, Cleaning. Areas on your vehicle that will require extra attention are as follows:

- Do not let mud remain dry on the vehicle as it becomes abrasive and can damage paint, glass, seals, bearings and brake components. If left to build up, mud can seriously affect the air flow through and over mechanical components. This may cause overheating and failure of parts, especially in the engine compartment.
- Clean the tyre treads.
- To maintain proper cooling air flow, ensure the radiator core and the area around the radiator is cleaned.
- Check the radiator and cooler cores for blockage (sand, silt, etc).
- Clean the underside and mechanical parts of the vehicle, particularly the following areas:
  - Driveshafts, including sealing bellows.
  - Front brake callipers, pads and discs.
  - Front suspension.
  - Clutch fork sealing bellows.
  - Rear brakes.
  - Rear suspension.
  - Fuel tank.
- The wheels must be removed to clean all mud and stones from the brake callipers, and to check brake pad wear.
- Ensure the breathers for the axles and fuel tank are fitted and undamaged.

Maintenance and off-road driving

Proper maintenance at all times ensures that the warranty remains valid, repair costs are kept to a minimum, vehicle performance and capabilities remain high, and driver and passenger safety is maintained.

If driving your vehicle off-road to a great extent, it is recommended that you have the chassis inspected more frequently.

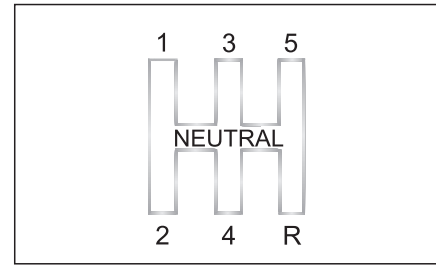
The maintenance intervals recommend in the Service/warranty booklet are dependent on the severity of the operating conditions. Therefore, under extreme operating conditions, e.g. driving on unsurfaced roads (with thick dust or mud accumulation etc. are prevalent), additional maintenance operations, e.g. changes of engine oil, oil filter and air filter element and checking of brake pads; should be performed at shorter intervals. Refer to the Service/warranty booklet for details. Your Holden Dealer will inform you which additional service is required between the normal service intervals after consideration of the specific operating conditions of your vehicle.

MANUAL TRANSMISSION

Shift pattern

The manual transmission system has five fully synchronised forward gears and one reverse gear. The shift pattern as illustrated, is found on the gear shift lever knob.

A slight pause between pressing the clutch pedal and moving into reverse gear is desirable to allow all the rotating components to stop and avoid gear clashing.



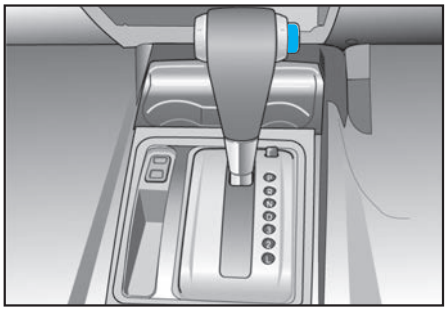
Operating notes

- Never attempt to engage reverse gear until the vehicle has completely stopped.
- When shifting from one gear to another, ensure you depress the clutch pedal fully to avoid clashing, and possible chipping, the transmission gears.
- Shift the gear with a moderate effort to allow time for the transmission synchronisers to work properly.
- Whenever reverse is selected with the ignition on, the reversing lights will operate.
- Do not drive with your foot resting on the clutch pedal as damage to the clutch may result.
- When stopped on an incline do not hold the vehicle by slipping the clutch. Use the brakes.
- When climbing steep grades, change down to a lower gear before the engine starts to labour. To maintain safe speeds on a steep downgrade and to reduce brake wear and overheating, shift into a lower gear before starting the decent.
- Do not over speed the engine when shifting down to the next lowest gear.

AUTOMATIC TRANSMISSION

This system has a four-speed automatic transmission. Its shift indicator is arranged with **P** (park) at one end, followed in sequence by **R** (reverse), **N** (neutral) and then the forward driving ranges.

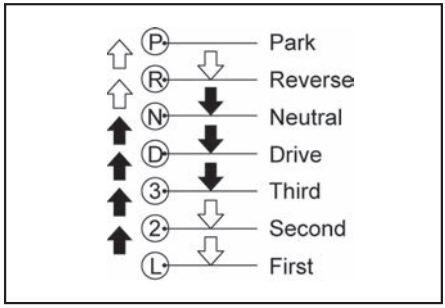
To prevent the vehicle from 'creeping' you should always have your foot on the brake pedal when shifting out of **P** (park).



WARNING

You can select some transmission positions without pressing in the button on the shift lever. However, it is recommended that you become familiar with these positions to prevent any accident that may occur due to incorrect operation.

The shift lever can be shifted freely into any position indicated by the arrow ➡. The lever cannot be shifted into any position indicated by the arrow ⇨ without pushing in the button located at the end of the shift lever.



Note

- The engine will not start unless the shift lever is in **P** or **N**.
- If the shift lever does not move from the **P** position, even after the above instructions are followed, perform the following steps:

1. Check if the park brake is fully applied.
2. Turn the ignition switch to the **ACC** position.
3. Move the shift lever from **P** to **N**, then start the engine again.
4. Depress the brake pedal and operate the shift lever.

Have the transmission checked by your Holden Dealer as soon as possible.

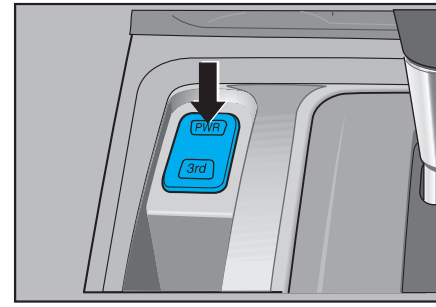
Shift indicator display (automatic)

The non Electroluminescent instrument panel transmission selector display is located between the fuel and temperature gauges.

The Electroluminescent* instrument panel transmission selector display is located at the bottom of the tachometer.

AUTOMATIC TRANSMISSION cont.

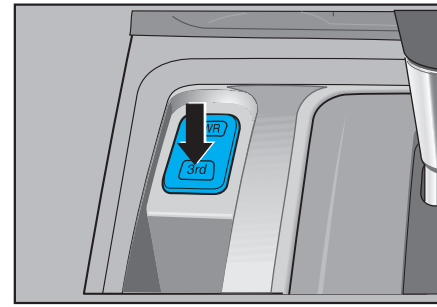
Power mode



For ordinary driving conditions, the normal driving mode is used. This mode is active unless another mode is selected.

When faster acceleration is required, press the **PWR** button, which is located on the left-hand side of the transmission shift lever. The power mode provides higher shifting speeds. The **POWER DRIVE** indicator light on the instrument panel will illuminate when this mode is active.

3rd MODE



The **3rd** mode button is used when driving on slippery muddy roads. This mode forces the vehicle to operate in 3rd gear, providing better traction and safer vehicle operation.

Note On the HFV6, take-off is in 3rd gear, but the transmission will change into 4th gear as normal.

To engage 3rd mode

To use 3rd mode, press the **3rd** mode button, which is located on the left-hand side of the transmission shift lever.

For the 3rd mode to engage and operate, the transmission shift lever must be in **D**, **N**, **R**, **P** and the vehicle must be moving less than 11 km/h.

The **3rd STRT** indicator light on the instrument panel illuminates when this mode is active. Refer to *Warning/indicator lights* in chapter 1.

To disengage the 3rd mode

- Move the shift lever to any position other than **D**, **N**, **R**, or **P**,
- Press the **3rd** mode button again, or
- Turn the ignition switch to the **OFF** position.

Note

- The 3rd mode will automatically disengage whenever vehicle speed exceeds 34 km/h.
- Use the 3rd mode only for slippery road conditions. Using it under ordinary driving conditions will result in sluggish performance and a rise in automatic transmission fluid temperature.

AUTOMATIC TRANSMISSION cont.

AUTOMATIC TRANSMISSION DEFAULTS (SAFETY MODE)

If the **CHECK TRANS** warning light flashes, the computer controlling the transmission has found a problem. The vehicle can be driven when the light is flashing, however, it should be checked by your Holden Dealer as soon as possible.

Depending on the nature of the problem, the transmission may still be able to change gears without the driver's assistance. However, in some cases the transmission's computer may put the transmission into safety mode. In safety mode, the transmission may not shift automatically. You must then shift the transmission lever to select gears manually. Refer to the table shown. The shift feel is firmer to prevent slipping and consequent wear.

Selected lever position	HFV6 petrol Gear ratio default	Diesel Gear ratio default
P	Park	Park
R	Reverse	Reverse
N	Neutral	Neutral
D	3rd	4th
3	3rd	4th
2	3rd	3rd
L	1st	3rd

AUTOMATIC TRANSMISSION cont.

Uphill/downhill transmission control system

The uphill/downhill transmission control system operates only when the shift lever is in the **D** position. Unnecessary gear changes and lockups are eliminated to provide smooth climbing.

- On steep uphill grades or when towing a heavy load, the system senses lack of engine torque in the upper gear and prevents upshifting (2nd to 3rd or from 3rd to 4th) or lockup. Frequent gear changes are eliminated.

On diesel vehicles using automatic transmission the following two points apply:

- On steep downhill grades, the system automatically downshifts when you apply the foot brake. Engine braking power is utilised to reduce the service brake load.
- The system automatically downshifts from 4th gear to 3rd gear on a downhill grade when:
  - the steepness exceeds a preset level, and
  - the brake pedal is applied.

P (park) This stops the rear wheels from turning and should be selected (together with the park brake) when leaving the vehicle. Never select **P** until your vehicle is fully stopped. The **P** position is one of only two positions (the other is **N**) in which your engine may be started.

Note The vehicle is equipped with Brake Transmission Shift Interlock (BTSI). To move the transmission gear selector lever out of position **P**, have the ignition switched to the **ON** position and depress the brake pedal. If the vehicle's battery is flat, refer to *Towing a disabled vehicle* in chapter 6.

R (reverse) Never select **R** until your vehicle is fully stopped. The reversing lights will operate when **R** is selected and the ignition is on. After reversing, make sure the vehicle has fully stopped before proceeding forward again.

N (neutral) This is the out-of-gear position. You may restart a stalled engine while the vehicle is still moving or stopped.

D (drive) This is the normal forward driving position and allows the transmission to choose the appropriate gear (1st through to 4th) for the driving conditions and optimum fuel economy.

3 (third) This position allows the transmission to shift between 1st, 2nd and 3rd gear as conditions require. 4th gear is excluded. Use this position when going down a long hill or on a road with many sharp curves. Shift back into the **D** position to return to normal driving.

2 (second) This position allows the transmission to shift between 1st and 2nd gear. Use this position when going down a moderate gradient where you want to slow down a little without using the brake. Shift back into the **D** position to return to normal driving.

L (low) The transmission cannot shift out of 1st gear when in this position and should only be used when strong braking effect is needed on a very steep hill. The shift lever can be shifted back to **L** at any speed. However, the transmission will not actually enter 1st gear until vehicle speed is below 36 km/h (petrol engine), 45 km/h (diesel engine). Remember to shift back to **D** to resume normal driving.

AUTOMATIC TRANSMISSION cont.

Operating notes

- Do not go from **P** or **N** to **R** or **D** with the accelerator pedal depressed.
- When driving down a long hill, reduce your speed and select a lower range. The engine will provide a braking effect. Remember if you ride the brakes, they may overheat, resulting in reduced performance. This is particularly important when towing.
- Be careful when accelerating, shifting up, shifting down or braking on a slippery surface. The abrupt change in engine speed, such as sudden acceleration or engine braking, could cause the drive wheels to spin or skid.
- Do not depress the accelerator pedal with the brakes on in either **L**, **2**, **3**, **D** or **R**. This will overheat the transmission.
- Do not use the accelerator pedal to hold the vehicle on a slope, use the brakes.
- Do not coast the vehicle in **N** as this lessens your control and the engine braking power.
- Always slow down in gusty crosswinds.
- For checking of the transmission fluid, refer to *Automatic transmission fluid level* in chapter 7.

FOUR WHEEL DRIVE SYSTEM OPERATION

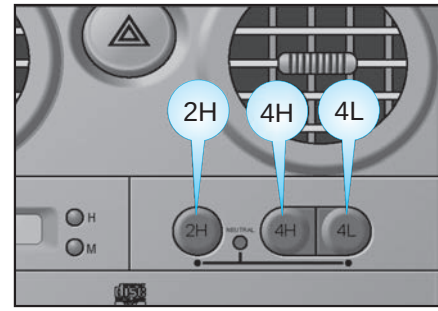
WARNING

Never operate the transfer control system (except from two wheel drive high range (**2H**), to four wheel drive high range (**4H**), or vice versa) while the vehicle is moving, the engine revolutions are above 2,000 RPM or the transmission is not in the correct position.

Note Do not use four wheel drive (4WD) for normal driving on dry pavement. It will cause unnecessary noise and wear, and poor fuel economy.

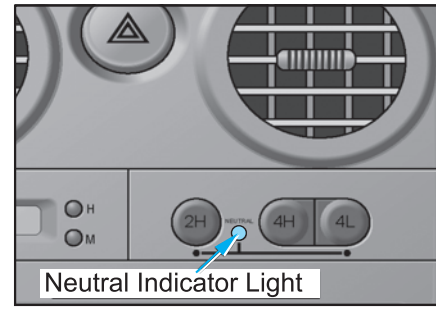
Shift on the fly system

Shift on the fly is a device used to connect the front wheels to, and disconnect them from, the driving axle. These operations are automatically changed when the 4WD switch is pushed in and the vehicle is running straight.



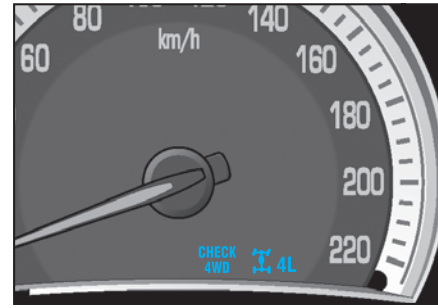
Transfer shift switch panel

The transfer shift switch panel is located on the dashboard below the right-hand centre vent. The transfer shift switch panel permits the driver to select two wheel drive high (**2H**), four wheel drive high (**4H**) or four wheel drive low (**4L**).



Transfer indicator (4WD, 4L, CHECK 4WD, NEUTRAL)

The transfer indicator light ⌆ is located on the instrument panel. The transfer indicator light ⌆ is provided with a bulb check function that will illuminate the transfer indicator when the ignition is switched to the **ON** position, and will extinguish after approximately two seconds. However, the light that indicates the vehicle condition at that time will remain illuminated.

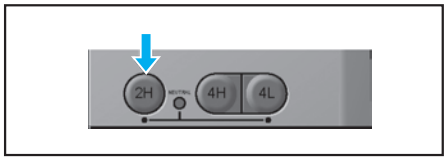


Note When selecting a different mode on the transfer shift switch panel (e.g. **2H** to **4H**) the respective indicator light will blink slowly (2Hz) while the transfer control system is in transit. Once the operation is completed the light will stop blinking and the indicator light will remain on or off depending on what action you have selected.

FOUR WHEEL DRIVE SYSTEM OPERATION cont.

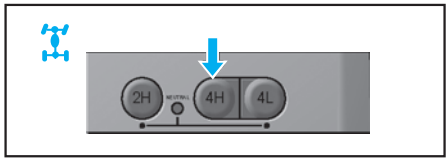
2H (high range, 2-wheel drive)

Use this position for normal driving on sealed roads. It gives greater economy, a quieter ride and the least drivetrain wear.



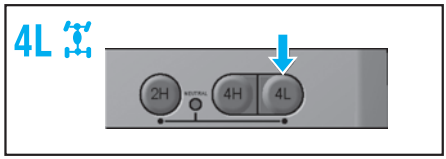
4H (high range, 4-wheel drive)

Use this position for normal driving on wet, icy or snow covered roads. It provides greater traction than 2WD.



4L (low range, 4-wheel drive)

Use this position for maximum power and traction. Use this position for climbing or descending steep hills, off-road driving, and hard pulling in sand, mud or deep snow.

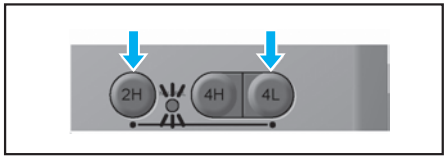


Neutral

Use this position to disengage the front and rear axles from the powertrain. Only use this position if being towed by another vehicle.

WARNING

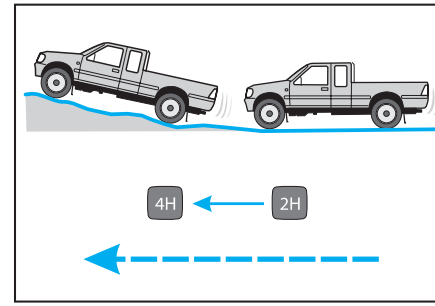
Do not leave the vehicle in **N** (neutral) except in the case of towing with all four wheels on the ground. The neutral position disengages both the front and rear axles from the transmission, and the vehicle may roll even if in **P** (park). Always remember to have the parking brake engaged when the vehicle is parked.

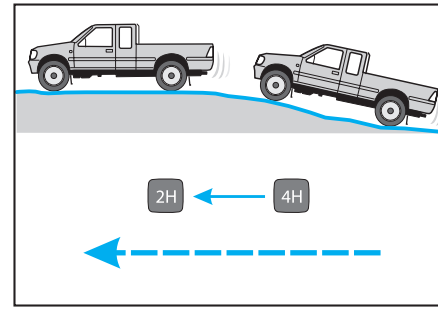


FOUR WHEEL DRIVE SYSTEM OPERATION cont.

Shifting from 2H ↔ 4H (4WD high)

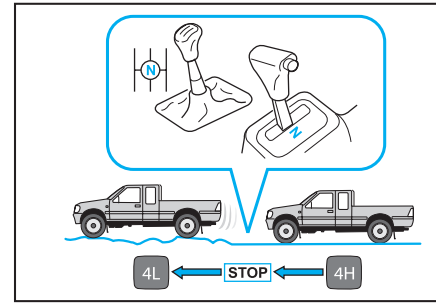
1. Keep the vehicle moving at a constant speed below 100 km/h. Keep the vehicle driving straight ahead.
2. Select the **4H** or **2H** position on the transfer shift switch panel.
3. The 4WD indicator light ⌗ on the instrument panel will blink until the system has completed its operation.
4. If the shift operation is not completed, stop the vehicle, then rock it slowly forward and backward.
5. Ensure the 4WD indicator light ⌗ switches on (if going from **2H** to **4H**) or off (if going from **4H** to **2H**) and the 4WD indicator light ⌗ on the instrument panel finishes blinking.

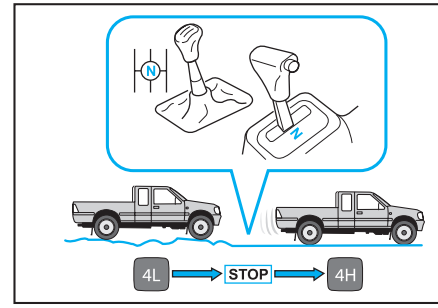




Shifting from 4H (4WD high) ↔ 4L (4WD low)

1. Stop the vehicle.
2. Shift the transmission shift lever to the **N** (neutral) position.
3. Select the **4H** or **4L** position on the transfer shift switch panel.
4. The **4L** indicator light on the instrument panel will blink until the system completes operation.
5. Shift the transmission shift lever to the appropriate gear that will suit the condition of the road that you are faced with.
6. If the shift operation does not complete, stop the vehicle and rock it slowly forward and backward.
7. Ensure the 4WD indicator light ⌗ switches on and the **4L** indicator light finishes blinking.

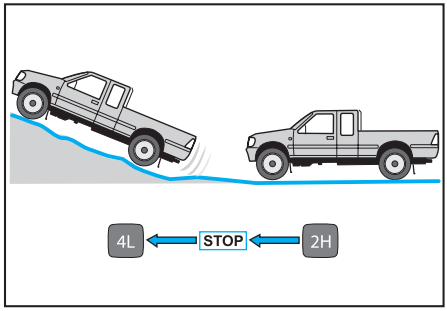


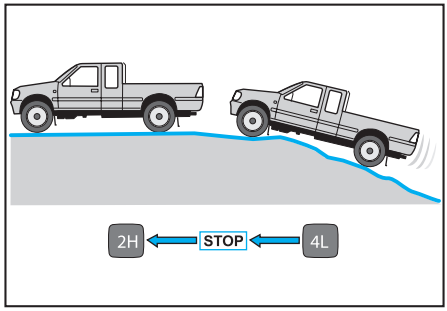


FOUR WHEEL DRIVE SYSTEM OPERATION cont.

Shifting from 2H ↔ 4L (4WD low)

1. Stop the vehicle.
2. Shift the transmission shift lever to **N** (neutral).
3. Select the **2H** or **4L** position on the transfer shift switch panel.
4. The ⌘ and **4L** indicator lights on the instrument panel will blink until the system completes operation.
5. Shift the transmission shift lever to the appropriate gear that will suit the condition of the road that you are faced with.
6. If the shift operation is not completed, stop the vehicle and rock it slowly forward and backward.
7. Ensure the 4WD indicator light ⌘ illuminates (if changing from **2H** to **4L**) or extinguishes (if changing from **4L** to **2H**) and the **4L** indicator light extinguishes.

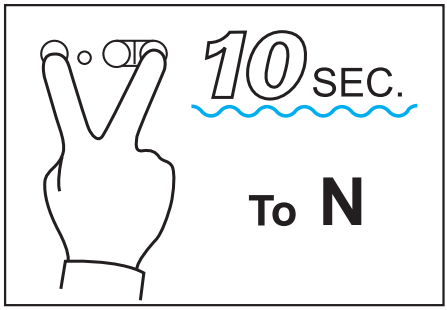




Shifting to neutral

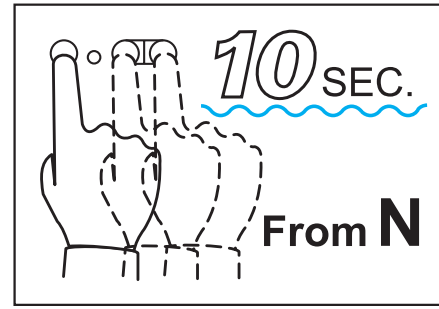
Shifting to neutral is restricted by the mode of vehicle, such as when changing from **4H** to **4L**.

1. Stop the vehicle.
2. Shift the transmission shift lever to **N** (neutral).
3. Press the **2H** and **4L** button located on the transfer shift switch panel together for more than 10 seconds.
4. The neutral indicator light on the transfer shift switch panel will blink until the system completes its operation.
5. Check that the vehicle does not move, even if the start-up procedure is being carried out.



FOUR WHEEL DRIVE SYSTEM OPERATION cont.

Shifting from neutral



1. Shifting to neutral is restricted by the mode of vehicle, such as when changing from **4H** to **4L**.
2. Stop the vehicle.
3. Shift the transmission shift lever to **N** (neutral).
4. Press any button on the transfer shift switch panel for more than 10 seconds.
5. The position indicator light on the instrument panel will blink until the system has completed its operation.
6. If the shift operation is not completed, stop the vehicle and rock it slowly forward and backward.

Note You can not operate the transfer shift switch to 4L or from 4L while the indicator light is flashing fast (four times in a second). In this case, perform the following procedure before changing the transfer shift switch to 4L or from 4L:

1. Stop the vehicle.
2. Allow the engine RPM to fall below 2,000 RPM.
3. Shift the transmission shift lever to **N**.

You may have to wait up to three minutes in either of the following cases:

- If you have not been driving the vehicle, but you have left the engine running for a long time with the transmission shift lever in **L**, **2**, **3**, **D** or **R**.
- If you have left the vehicle in gear for a long time, with the clutch released.

In either of these cases, you can immediately change the transfer shift switch to or from 4L after performing the following:

- Drive the vehicle.
- Turn the ignition switch to the **OFF** position and then back to the **ON** position.

Notes

- In cold weather or high speed conditions, the **4H** indicator light may change from slow flashing (2Hz) to fast flashing (4Hz), after selecting the **4H** switch, from the 2WD position.
- The 4WD indicator light ⌑ may remain on if the engine was last shut down while 4WD was still engaged. If this happens, gently rock the vehicle backward and forward.
- If the 4WD indicator light ⌑ continues to slowly flash, after pushing the **4H** switch (changing from **2H** to **4H**), or after pushing the **2H** switch (changing from **4H** to **2H**), drive straight ahead while accelerating or decelerating (depending on which mode you have selected). If the vehicle has stopped it will only require a two to three meter forward movement.

WARNING

In the event that all position indicator lights fail to either illuminate or extinguish, or the **CHECK 4WD** indicator light illuminates, contact your Holden Dealer and have the vehicle inspected.

ANTI-LOCK BRAKE SYSTEM (ABS)*

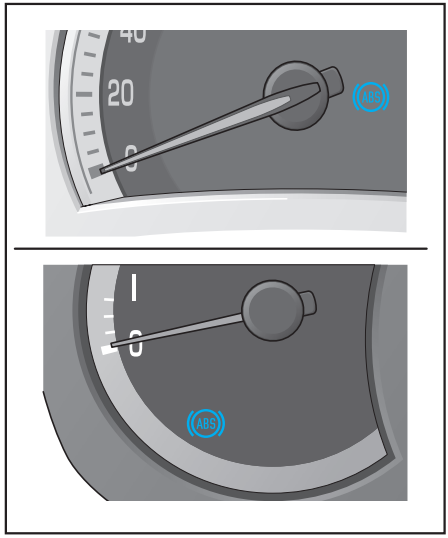
Anti-lock Brake System (ABS) continuously monitors the vehicles brake system and prevents the wheels from locking, irrespective of the road conditions and tyre grip. It starts to regulate the braking effect as soon as a wheel shows a tendency to lock. The vehicle remains steerable, even in the event of panic braking, for instance on bends or when swerving to avoid an obstacle.

WARNING

Do not let this special safety feature tempt you into taking risks when driving. Traffic safety can only be achieved by adopting a responsible driving style. The vehicle's speed should always be adjusted to suit road and traffic conditions.

In an emergency braking situation the driver should keep full force on the brake pedal, without pumping it. Pumping the brake pedal when ABS is fitted will reduce the braking efficiency.

The ABS warning light is illuminated for a few seconds when the ignition is switched to the **ON** position. If it does not go out, or if it comes on during driving, there is a defect in the ABS. The vehicles brake system remains operational but without ABS assistance. You should consult your Holden Dealer as soon as possible.



The braking effect is regulated by the ABS every millisecond during braking.

When your vehicle is in a critical braking situation, ABS will make itself noticeable through pulsing of the brake pedal and the noise of the regulation process, thereby reminding you to match your speed to the road conditions, even though it is keeping control of the braking.

Shortly after driving away, the system performs a self-check. The self-check may be audible.

Brake pad

Where possible, avoid hard braking. Smooth operation of the brake pedal will increase the life of the brakes and reduce wear on the braking system. When the vehicle is descending a steep slope, it is advisable to use the foot brake in combination with lower gears to provide an engine braking effect.

Disc brake wear indicators: The front disc brakes have built-in wear indicators which make a high pitched squealing or cricket-like warning sound when the brake pads are worn. This sound can come and go, or be heard all the time when the wheels are rolling, but may stop when the brake pedal is pushed down firmly. Extensive damage can result if the linings are not replaced when needed. Contact your Holden Dealer if this sound is evident.

NOTES

CHAPTER 5

Fuel

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WARNING

The vehicles engine has not been designed for conversion to LPG. The performance and safety of the vehicle would be seriously jeopardised if converted to LPG.

*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

FUEL

EXHAUST WARNING - CARBON MONOXIDE POISONING

- Exhaust gases can produce carbon monoxide, a dangerous gas, which can cause unconsciousness and even death to both humans and animals.
- You could inhale the gases if the exhaust system on your vehicle is faulty.
- To protect against exhaust gases entering the vehicle, the exhaust system and body should be inspected:
  - each time the vehicle is serviced.
  - whenever a change is noticed in the sound of the exhaust system.
  - whenever the exhaust system, underbody or rear of the vehicle is damaged.
- Take the vehicle to your Holden Dealer if you think your vehicle needs inspecting for any of the above reasons.
- Do not sit (or leave children or pets) in a parked vehicle for any extended period of time with the engine running. Do not run the engine in an enclosed area (such as a garage) any longer than needed to move the vehicle.

FUEL WARNING

- Fuel is extremely flammable and highly explosive.
- Always switch off the engine and any mobile phones when refuelling.
- Do not smoke or allow open flames or sparks near the vehicle when refuelling.
- If fuel fumes are smelt while driving, the cause should be found and corrected without delay by a Holden Dealer.

WARNING – FUEL ADDITIVES

Various additives are used in the formulation of good quality fuel and the use of supplementary additives in fuel is not required unless specified by Holden. Under no circumstances should fuel containing the manganese additive known as MMT (methyl cyclopentadienyl manganese tricarbonyl) be used, as this additive is known to cause contamination of catalytic converters, spark plugs and the malfunction of On-Board-Diagnostic (OBD) systems. The use of fuel additives that are not recommended by Holden may affect your New Vehicle Warranty to the extent that Holden considers that the additives affect the specifications and quality of the vehicle.

LPG conversion

Your vehicle was not designed to be converted to LPG. Holden does not provide LPG conversion kits for these vehicles. Your New Vehicle Warranty may be invalidated to the extent that any LPG alterations affect the specifications of your vehicle. Refer to the Service/warranty booklet.

FUEL cont.

Use of fuel containing ethanol

WARNING

When purchasing such fuel, we recommend that the vehicle be operated on fuel containing no more than 10% ethanol. Purchasing fuel from a reputable fuel retailer may reduce the risk of purchasing fuel with more than 10% ethanol or fuel which contains abnormal fuel properties. Under no circumstances should fuel containing more than 10% ethanol be used. Use of such fuels may result in engine malfunction, starting and operating difficulties, and materials degradation. These adverse effects could result in permanent damage to the vehicle and personal injury. It is also important to note that when ethanol blends are used, fuel consumption can be expected to increase due to the lower energy content of ethanol.

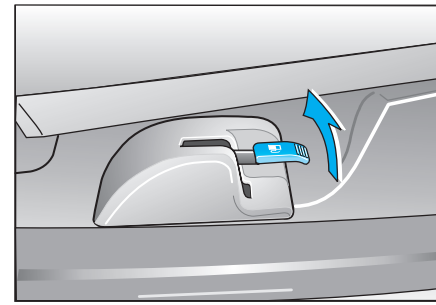
The use of any fuel, other than the fuel specified on the following page, may seriously damage the vehicle and may void the warranty. Only clean fuel of good quality should be used. The use of fuel containing more than 10% ethanol may also affect your New Vehicle Warranty to the extent that Holden considers that the fuel affects the specifications and quality of your vehicle.

Use of diesel fuel containing ethanol

WARNING

- Under no circumstances should you use diesel fuel containing ethanol. Use of such fuels may result in engine malfunction, starting and operating difficulties and materials degradation. These adverse effects could result in permanent damage to your vehicle and personal injury.

FUEL FILLING



To release the fuel filler door*, pull up on the release lever. The release lever is located on the right-hand side of the driver's seat.

Remove the fuel cap by turning it anti-clockwise.

Note For instructions on how to lock the fuel filler cap, refer to *Keys and locks* in chapter 2.

After refuelling, turn the fuel cap clockwise until a clicking sound is heard, then push the fuel filler door shut.

Overfilling

Overfilling of the fuel tank can affect the evaporative emission control system and can also result in a smell of fuel inside the vehicle, therefore:

- Petrol tanks should always be filled at the intermediate or fast fill rate. Do not add any more petrol after the petrol filler first clicks off or petrol blows back, as this allows room for the petrol to expand inside the tank.
- It is only permissible to 'trickle fill' petrol tanks when the vehicle is to be driven for more than 50 km immediately after the tank is filled. However, this is not recommended on days over 30 °C.
- Wipe off any overflowing petrol immediately from the vehicle and refit the fuel cap; spray or splash with water.

Fuel filler nozzle restrictor for petrol engines

To help protect the atmosphere, your vehicle has been designed to operate on unleaded petrol. A petrol nozzle restrictor is fitted to ensure that only unleaded petrol is used. This allows the smaller diameter unleaded petrol nozzle to open the hinged flap inside the filler neck, so that petrol can be added to the tank. The leaded petrol nozzle is wider and therefore can not open the flap.

FUEL TYPES

WARNING

The use of fuel, other than the fuel specified, may cause serious damage to your vehicle and may void your warranty. Only clean fuel of good quality should be used.

PETROL ENGINES

Use UNLEADED PETROL of 91 octane rating or higher.

High octane unleaded petrol (premium etc.) may be used, but is not required for your vehicle. The use of any other fuel would seriously damage the engine of your vehicle and may void your warranty. Only clean petrol of good quality should be used.

DIESEL ENGINES

Fuel requirements

Diesel engines must be operated only on commercially available Ultra Low Sulphur Diesel (ULSD) fuel meeting the requirements of the Australian National Fuel Standards. Do not use marine diesel oils or heating oils.

Note From January 1, 2006, ULSD became the national standard for diesel fuel sold within Australia.

WARNING

- Under no circumstances should you use fuel described as biodiesel. This fuel is typically a blend of diesel fuel containing fatty acid methyl esters (FAME) at 5 % concentration (B5). Use of such fuels may result in engine malfunction, starting and operating difficulties. These adverse effects could result in permanent damage to your vehicle.

Diesel fuel filter/water separator

The vehicle's fuel system is fitted with a diesel fuel filter and water separator. Warning/indicator lights on the instrument panel will illuminate when attention is required.

Water separator:

If this warning/indicator light illuminates on the instrument panel, the water separator requires draining. Refer to *Draining water separator* in chapter 6.

Diesel fuel filter:

If this warning/indicator light illuminates on the instrument panel, the diesel fuel filter requires replacement. Contact your Holden Dealer as soon as possible.

Note

- If the diesel engine runs out of fuel, the fuel system must be 'bled' after the tank is filled. Refer to *Bleeding fuel system* in chapter 6.
- Do not use additives to the fuel to facilitate water separation from the fuel system.

EMISSION CONTROL

Your vehicle is fitted with emission control systems which are designed to reduce the amount of hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) that are emitted from the engine and fuel system into the atmosphere. HC and NOx, when exposed to sunlight under certain conditions can contribute to smog. In addition, carbon monoxide is toxic when it becomes highly concentrated in the air.

The three major emission control systems fitted to your vehicle are:

- **Evaporative emission control system**
  This system is designed to prevent the escape of fuel vapour from the fuel system and recycle it through the normal combustion process.
- **Crankcase emission control system**
  This system is designed to prevent blow-by gases from escaping into the atmosphere and recycle them through the combustion process.
- **Exhaust emission control system**
  The various components of this system operate collectively to limit HC, CO and NOx emissions in the exhaust gas. The exhaust emission control system is comprised of components including electronic control of spark, fuel and idle speed. In addition, Australian vehicles have a catalytic converter and closed loop mixture control system.

For detailed information on the operation, servicing and repair procedures for these systems, refer to the Service/warranty booklet and/or the emission label inside the engine compartment (on the passenger side strut tower) of your vehicle.

Owner responsibility

Vehicles sold and serviced within Australia have been designed to comply with Australian Design Rules and State Regulation emission requirements.

The engine, engine control system or exhaust system of the vehicle must not be modified in any way. Any change to the design may increase the emissions or otherwise defeat the intent of the regulations.

WARNING

Any person who removes, modifies or hinders any part of the emission control system may be contravening Australian Design Rules, refer A.D.R. 83/00 (External Noise for Motor Vehicles) and A.D.R. 79/01 (Emission Control for Light Vehicles, 'Euro 3'). It is also illegal to drive a vehicle modified in this way.

First drive

When the vehicle is driven for the first time, wax and oil on the exhaust system may evaporate, producing smoke-like emissions that should not be inhaled. Allow wax and oil to evaporate while the vehicle is in the open air.

Maintenance requirements

To ensure continuing compliance with the regulations, you must have the vehicle serviced at the frequency shown in the *Maintenance schedule,* in the Service/warranty booklet. Your Holden Dealer will maintain the vehicles emission control system as per the vehicles' service manual.

It is recommended that the necessary servicing be performed by an authorised Holden Dealer who has the specialised servicing equipment and trained personnel available to ensure that the adjustments and services specified are carried out.

REDUCING FUEL CONSUMPTION

Engine

Maintain the engine in peak mechanical condition by having it serviced regularly in accordance with the *Maintenance schedule* in the Service/warranty booklet. This ensures items such as the spark plugs and the air filter element are maintained for minimum fuel usage and peak engine performance.

Tyre pressure

Keep the tyres at the recommended pressures. Under-inflated tyres create extra rolling resistance which contributes to increased fuel consumption. Refer to *Tyres* in chapter 7.

Incorrect tyre pressures can also cause uneven and premature tyre wear.

Wheel alignment

Maintain correct front wheel alignment. Incorrect alignment makes the front wheels drag, which increases fuel consumption and causes uneven and premature tyre wear.

Warm ups and idling

Avoid long engine warm ups. They are unnecessary and waste fuel. An engine takes approximately 5 minutes to reach its efficient operating temperature and it does this most effectively when driving.

Avoid long engine idling. If you have to wait for more than a couple of minutes switch off the engine to conserve fuel.

Accelerating, driving and braking

Accelerate gently and avoid rapid accelerating from lights or stop signs. Sudden bursts of speed, full throttle acceleration and hard braking waste fuel.

Drive the vehicle at steady speeds where possible (after running-in). It is desirable to reach top gear as soon as possible, but under no circumstances should you force the engine to labour in top gear.

Riding the brake

Do not rest your foot on the brake pedal when you do not intend to brake, as this can overheat the brakes, increase brake pad wear, damage the brakes and waste fuel.

Air conditioning

Switch off the air conditioner when not required. However, once every 2 weeks, with the engine running, switch the air conditioner on for 5 to 10 minutes, even in winter, to lubricate the seals.

Loading

Unnecessary weight increases fuel consumption, especially when accelerating.

NOTES

CHAPTER 6

Emergencies

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*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

CUSTOMER ASSISTANCE

We want you to be happy with your new vehicle, together with the people you deal with while you have the vehicle.

Normally, any problems with the sales, operation, servicing or the validity of original equipment supplied with your vehicle will be handled by your Holden Dealer's Sales and Service Department.

We realise however that, with the best intentions, misunderstandings sometimes occur.

Therefore, we suggest you discuss any concern with one of the Holden Dealer's management people. If you have not received satisfaction from the Sales Manager or Service Manager – go to the General Manager or to the Dealer Principal.

By now you should have satisfaction. If not, the Holden Customer Assistance office is at your disposal.

The Holden Customer Assistance representatives can be telephoned from anywhere within Australia for only the cost of a local call. The contact number is:

1800 033 349

If your concern relates to parts/accessories and you have made contact with the dealer or distributor without satisfaction, you may contact Holden Service Parts Operations on (03) 9797 7341.

Naturally, telephoning is the quickest and the best way to contact. However, if you prefer to write the address is:

The Manager
Holden Customer Assistance Centre
GPO Box 1714
Melbourne 3001

Your letter should clearly outline your concern or query, and include the following:

- Your name and address.
- Telephone numbers, both private and business.
- Servicing dealer's name and address.
- Vehicle model.
- Vehicle identification number (I.S.O.V.I.N.), refer to the inside front cover of the service booklet in your vehicles glovebox.
- Date of purchase.
- Current odometer reading.

Most of this information will be found on the Vehicle Identification Certificate, located inside the front cover of the service booklet in your vehicles glovebox.

Before you write however, remember that the telephone is the quicker and more efficient means of communication.

FOR NEW ZEALAND HOLDEN OWNERS

The information in this Owner's Handbook applies primarily to Australian Holden vehicles and there may be some differences to the Warranty and Owner Assistance provisions for New Zealand. Applicable details for New Zealand are set out in the Holden Warranty and Owner Assistance Information booklet enclosed in the New Zealand glovebox wallet.

New Zealand Assistance can be reached on:

0800 HOLDEN (0800 465 336)

This number provides access to New Zealand Roadside Assistance as well as New Zealand Customer Assistance.

If you prefer to write the address is:

The Manager
Holden Customer Assistance Centre
GPO Box 1714
Melbourne
Australia 3001

FLAT TYRE

If using a jack other than the one supplied with the vehicle, refer to *Trolley jack locations* in chapter 7 for lifting positions.

WARNING

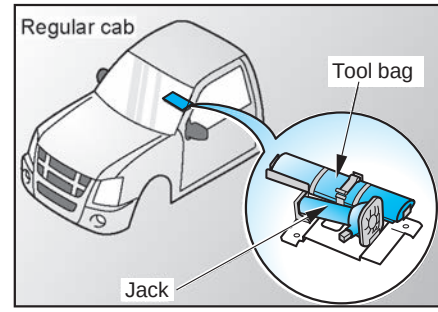
- Use the jack only for lifting the vehicle when changing wheels.
- Do not get under a vehicle supported only by a jack; use vehicle support stands.
- Do not start or run the engine while the vehicle is only supported by the jack.
- All passengers should be out of the vehicle when it is being jacked.
- Use the jack only at the designated lifting points. Use in other locations can damage the vehicle.
- The vehicle should only be jacked on hard, level surfaces.
- Do not jack a vehicle with a trailer attached. Remove the trailer first.

1. Park on a level surface, ensure the wheels are pointing straight ahead and set the park brake firmly.
2. Remove the ignition key (to lock the steering) and place manual transmissions in reverse gear or automatic transmissions in (P) park.
3. Remove the jack and tools.

Single cab models:

The jack and tool bag are positioned behind the right seat. To access, tilt the back of the seat forward. Refer to *Seat adjustment* in chapter 3 for seat tilt lever location.

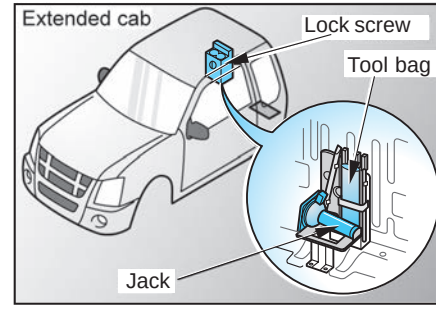
To remove the jack, turn the pressure release knob anticlockwise, to reduce its length, so it can be lowered away from the holder. Remove the jack when the length is fully reduced.



Space cab models:

The jack and tool bag are positioned behind the front seats. To access, tilt the back of the seat forward. Refer to *Seat adjustment* in chapter 3 for seat tilt lever location.

To remove the jack, turn the pressure release knob anticlockwise, to reduce its length, so it can be lowered away from the holder. Remove the jack when the length is fully reduced.

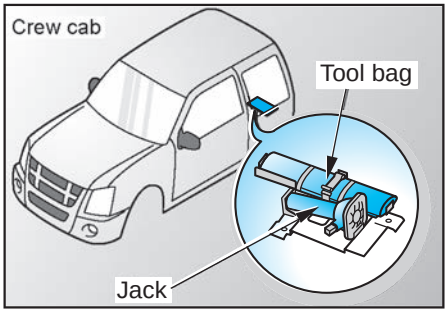


FLAT TYRE cont.

Crew cab:

The jack and tool bag are positioned under the left rear seat.

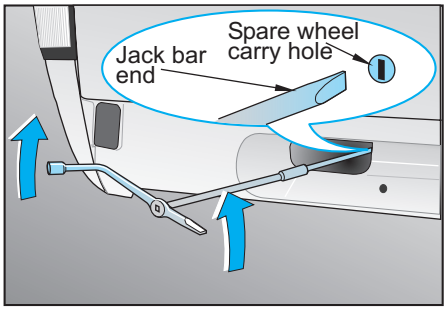
To remove the jack, turn the pressure release knob anticlockwise, to reduce its length, so it can be lowered away from the holder. Remove the jack when the length is fully reduced.



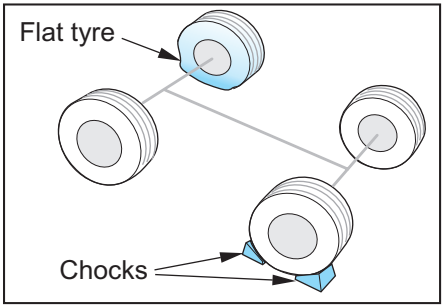
4. Remove the spare wheel, which is secured under the rear of the chassis frame by a chain.

   To lower the spare wheel, insert the jack handle into the hole at the rear of the vehicle below the tailgate. Slide the jack handle all the way in to engage the catch, then turn the handle anticlockwise.

   To raise the spare wheel, turn the jack handle clockwise to the wheel 'stop' then give an additional turn to securely hold the spare wheel in position.

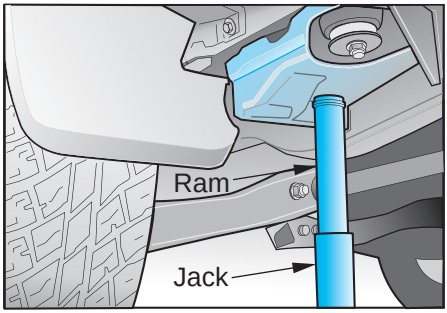


5. Chock the wheel diagonally opposite to the flat tyre by placing wedge blocks, or any other available blocks of wood or rocks behind and in front of the wheel.
6. Loosen (but do not remove) the wheel nuts by turning the wheel wrench anticlockwise.



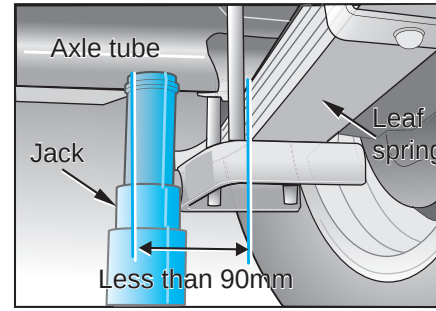
7. Place the jack under the recommended jacking point.

   Front jacking point: Set the jack to the lower surface on the 2nd mounting bracket.



FLAT TYRE cont.

Rear jacking point: Set the jack within 90 mm from the leaf spring under the axle tube. Align the recess on the jack head to the curved surface of the axle tube.



WARNING

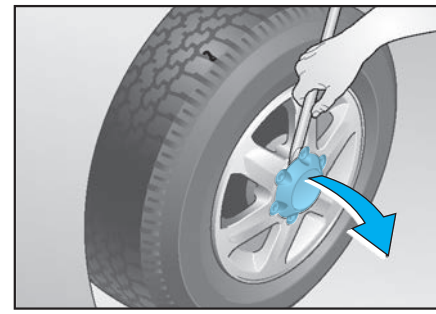
Failure to position the jack as described could result in serious personal injury or vehicle damage caused by the vehicle slipping off the jack.

Ensure the jack is not tilted and the base is resting squarely on the ground.

WARNING

The jack is a 2-stage ram jack. Stop extending the jack when both rams are raised to the point where the stop mark on the rams becomes visible. Further extension could damage the jack, making it unstable.

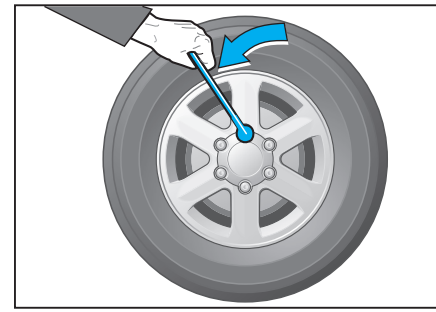
8. Raise the vehicle by turning the crank handle, until the tyre is clear of the ground. If there is a wheel cap fitted, remove it by using the flat end of the jack handle. Pry along the edge of the wheel cap until it comes off.



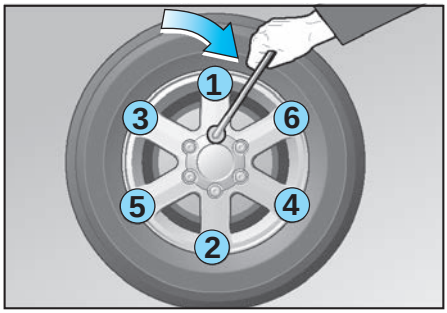
WARNING

The rim along the edges may be sharp. Do not try to remove it with your bare hands (aluminium wheel only).

9. Remove the wheel nuts and place together in a dry spot, to avoid getting dirt on the threads.
10. Remove the wheel from the vehicle and change it over with the spare.



FLAT TYRE cont.



11. Replace the wheel nuts and tighten by hand. Then, with the wheel wrench, lightly tighten in the sequence shown.
12. Lower the vehicle completely and remove the jack.
13. Fully tighten the wheel nuts with the wheel wrench in the sequence shown. Replace the wheel cover (aluminium wheel only).
14. Return the jack, jack handle, wheel wrench and flat tyre to the rear of the vehicle, as shown previously in this chapter.

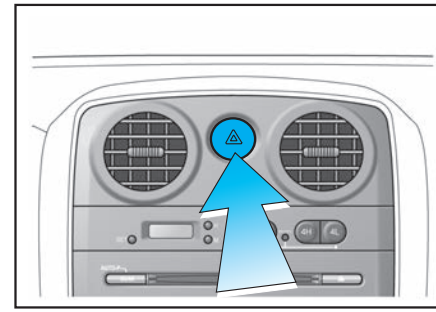
    To install the jack, place it into position under the holder and turn the knob in a clockwise direction until the ram pushes against the top of the holder, locking it into place.
15. Have the tyre repaired as soon as possible.

WARNING

- As soon as possible after changing a wheel, you should have the wheel nuts tightened with a torque wrench to 120 Nm (Newton metres) and have the new wheel balanced on the vehicle.
- Wheel nuts should be tightened evenly to the correct torque in the sequence shown, as wheel nuts which have not been properly tightened could eventually allow the wheel to come off while the vehicle is moving!

TOWING A DISABLED VEHICLE

Hazard warning flasher



Use the hazard warning flasher to warn other drivers any time your vehicle becomes a traffic hazard, day or night. Avoid stopping on the roadway if possible.

Switch the hazard warning flasher on or off by pressing the hazard warning switch, which is located in the middle of the dashboard. Both indicator symbols on the instrument panel will flash simultaneously, and all four external indicator/turn signal lights will flash continuously.

The hazard warning flasher will work with the ignition switch in any position.

Towing your disabled vehicle

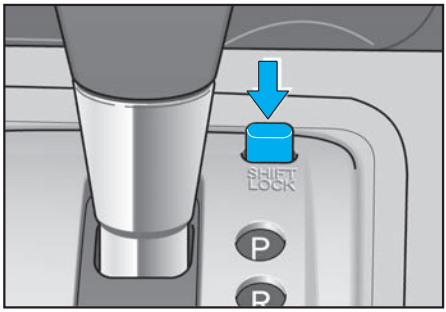
Proper lifting or towing equipment is necessary when lifting or towing the vehicle to prevent damage during any towing operation. State and local laws must be followed.

In an emergency, your vehicle may be towed on all four wheels in the following manner:

- Fit the towing equipment to the towing eye, which is located on the underside of the left hand front subframe below the bumper. Do not attach any towing equipment to the bumpers or brackets.
- Place the automatic transmission in **N** (neutral) position and release the park brake.
- Place the manual transmission transfer lever in neutral position. Refer to *Manual transmission* in chapter 4 for shifting to neutral.
- Turn the ignition key to the **ON** position. This will free the steering lock and allow the correct operation of windscreen wipers and turn signals.
- For the sake of safety and to prevent damage to the vehicle it is advisable to avoid jerky movements and to drive slowly during towing operations.
- Remember that power assist for brakes and power steering* will not be available when the engine is off.
- To prevent the entry of exhaust fumes from the towing vehicle into the passenger compartment of your vehicle, close the windows and stop the entry of air by moving the heating and ventilation controls to the recirculation position.
- Vehicles fitted with automatic transmissions must not be towed for more than 55 kms or at over 30 km/h unless the propeller shaft is removed.
- Vehicles with damaged transmissions must not be towed unless the propeller shaft is removed.
- Only the driver should be in the towed vehicle.

TOWING A DISABLED VEHICLE cont.

MOVING A DISABLED VEHICLE WITH AUTOMATIC TRANSMISSION



For safety, the transmission has an electric park lock (called BTSI) that requires the key to be in the ignition, in the **ON** position, and the brake pedal to be pressed before the transmission gear selector can be moved from the **P** (park) position. If the battery is flat, the selector cannot be moved as required for towing unless BTSI is disengaged manually.

To disengage BTSI:

1. Apply the park brake.
2. Push the override **SHIFT LOCK** button (as shown), depress the brake pedal, press the select button and move the transmission gear selector to position **N** (neutral).

Note

- The **SHIFT LOCK** button must be pushed prior to the transmission select button.
- The transmission selector locks again if it is moved back to the park position.

ENGINE OVERHEATING

WARNING

Immediate action is required if the engine overheats. This may be indicated by the temperature gauge needle moving to the red zone, due to steam escaping from under the bonnet, a loss of power or a loud knocking or pinging noise.

Continued driving even for a short time could result in a fire or vehicle damage.

Should the coolant temperature gauge needle move to the **H** position and remain there for more than 30 seconds, pull over to the side of the road safely. Leave the engine idling while you step out of the vehicle to check that the cooling fan is working.

WARNING

Do not open the bonnet if you can see or hear steam or coolant escaping from the engine compartment. Wait until no steam or coolant can be seen or heard before opening the bonnet.

If the fan is working and the temperature gauge needle has not returned to its normal position within a few minutes, stop the engine and remove the ignition key.

Look for leaks at the radiator hoses and connections, heater hoses and connections, radiator and water pump and fan belt. Take care when checking all of these areas as they may still be hot.

If you find a major leak or other problems that may have caused the engine to overheat, do not run the engine until these problems have been corrected.

If you do not find anything wrong then you should check the engine coolant level in the coolant reservoir. Refer to *Engine coolant level* in chapter 7 for the location.

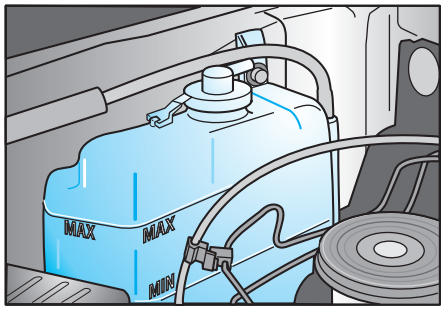
WARNING

Do not remove the cooling system cap if the engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure which could cause serious burns.

ENGINE OVERHEATING cont.

WARNING

The cooling system is pressurised, to avoid injury. Please read all of the following instructions before attempting to add coolant.



Without undoing the coolant reservoir cap, look at the level of the coolant in the see-through coolant reservoir.

When the engine is hot the level should be above the **MIN** mark.

If the level is at or below the **MIN** mark when the engine is hot, coolant will need to be added as follows:

- Allow the engine to cool a little.
- The bottle is pressurised, so cover the cap with a thick cloth. Remove the cap very slowly to allow any pressure to escape.
- If water is added it should be clean.
- Top up the coolant reservoir to the **MAX** mark (while the engine is idling).
- Replace the coolant reservoir cap.

If after taking one or more of the above actions the temperature gauge no longer indicates an overheat condition you can resume driving at a reduced speed. Return to normal driving after 10 minutes if the temperature gauge does not again show an overheat condition. If overheating occurs again, have the vehicle checked as soon as possible by your Holden Dealer.

The engine may temporarily operate at high temperatures during demanding operating conditions, especially on hot days, including:

- Climbing a long hill.
- Stopping immediately after high speed driving.
- Idling for long periods in traffic.
- Towing a heavily laden trailer or caravan.

Note It may help to switch off the air conditioner in these conditions.

Refer to *Engine coolant level* in chapter 7 to help protect your cooling system from overheating.

FLAT BATTERY

WARNING

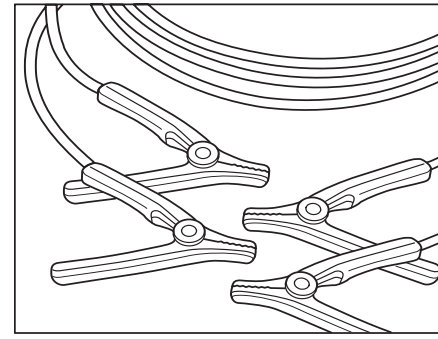
- Do not push start or tow start your vehicle with a flat battery. If unburnt fuel were to reach the catalytic converter and ignite, the converter could overheat or be destroyed by backfire. Therefore, if the battery is flat, you can jump start, but not push start your vehicle.
- To protect your vehicle's electrical system; never disconnect the battery when the engine is running, never start the engine while the battery is disconnected, never charge the battery while it is still connected to the vehicle (first disconnect the negative cable, then the positive cable). The polarity of the battery, i.e. the connections for the positive and negative cables, must not be interchanged when reconnecting. First connect the positive cable, then the negative cable.

If your vehicle does not start due to a discharged battery, it can often be started by using energy from another battery, a procedure called jump starting.

Please read the following procedure before attempting to jump start your vehicle.

However, if after reading the following procedure you are still unsure about jump starting we strongly recommend, for your safety and that of your vehicle, that you leave the starting to a competent mechanic.

Jump starting



WARNING

Batteries produce explosive gases, contain corrosive acids and supply levels of electrical current high enough to cause burns. Therefore, to lessen the chance of personal injury when working near a battery:

- Do not expose the battery to open flames or sparks. Battery action generates hydrogen gas which is flammable and explosive.
- Do not smoke near a battery.
- Wear eye protection such as industrial safety glasses and avoid leaning over the battery whenever possible.
- Do not allow battery acid to contact eyes or skin. Flush any contacted area with water immediately. In case of eye contact you should seek medical help. Battery acid also damages paint and fabrics. To minimise damage, wash all battery acid off immediately.
- Ensure any batteries that have filler caps are properly filled with fluid.
- Remove rings, metal watch bands and other metal jewellery before working around the battery.
- Carefully follow each step in the jump starting procedures.
- Never use a quick charger to start your engine.
- Do not lean over the battery during jump starting.

FLAT BATTERY cont.

1. The battery in your vehicle has a negative earth and a 12 volt rating. The battery in the other vehicle must also have a negative earth and a 12 volt rating.
2. Position the two vehicles so that they are not touching and apply the park brakes. If your vehicle is fitted with an automatic transmission, place in **P** (park), or if manual transmission, into neutral. Turn the ignition switch to **OFF** and switch off all the lights and accessories in both vehicles, except the hazard warning flasher or any lights needed for the work area.
3. Attach one end of the red jumper lead to the positive terminal of the charged battery (identified by a red colour, **+** or **P**) and the other end of the red jumper lead to the positive terminal of the flat battery.
4. Attach one end of the black jumper lead to the negative terminal of the charged battery (identified by a black colour, **-** or **N**) and the other end of the black jumper lead to a solid stationary, metallic point on the engine of the vehicle with the flat battery.

   Do not connect directly to the negative terminal of the battery, as this can cause sparks.
5. When making all connections, ensure the jumper lead clamps do not touch each other. Also, ensure the jumper leads are not on or near pulleys, fans or other points that will move when the engine is started.
6. Start the engine in the assisting vehicle and run the engine at a moderate speed. Then start the engine with the flat battery. Attempts to start the engine with the flat battery should be made at one minute intervals and should not last longer than 15 seconds.
7. After starting, allow both engines to idle for approximately 3 minutes with the leads still connected.
8. Leave the engine running while removing the jumper leads – in the exact reverse order they were installed. When removing each clamp, take care that it does not touch any other metal while the other end remains attached.

FUSE REPLACEMENT

Fuse boxes

There are two fuse boxes; one is located on the right-hand side of the dashboard, visible when the door is open. The other is located on the passenger's side of the engine compartment.

Fuses are also located separately in the engine compartment. When replacing a fuse, switch the respective switch and the ignition to the **OFF** position.

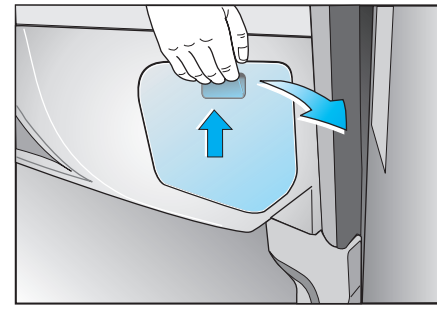
To determine whether or not a fuse is blown, it is necessary to pull out the suspect fuse and examine the wire within the fuse. A fuse puller is provided in the fuse box. A blown fuse can be recognised by its melted wire. If a fuse blows twice in a row a fault is indicated. The cause should be located and fixed by a Holden Dealer.

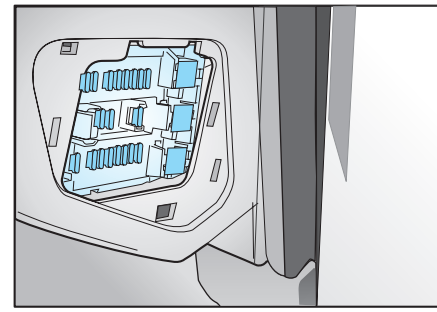
Dashboard fuses

To open the fuse cover in the dashboard, open the driver's door, pull the top of the cover out, then pivot downward.

Always ensure the cover is correctly fitted after use.

The fuse amperage is shown on the inside of the fuse cover.





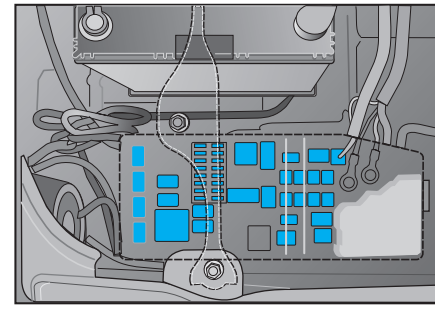
Fuse box in engine compartment

This fuse box is located on the passenger side of the engine compartment. It contains circuit fuses, main fuses and relays.

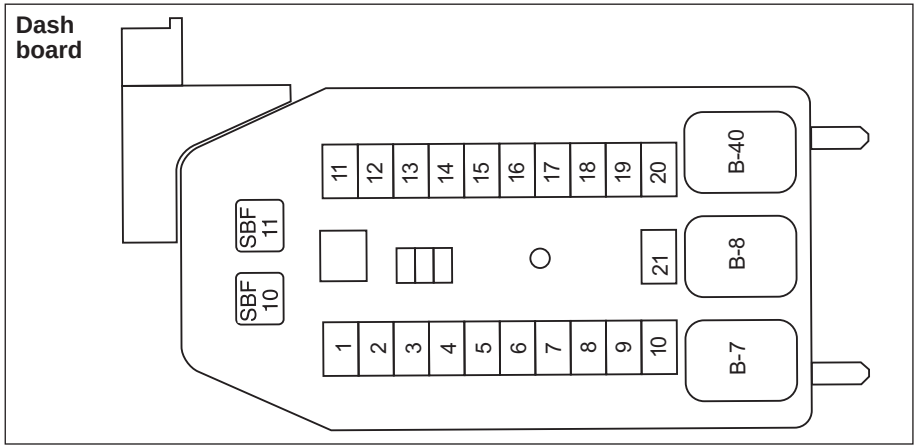
To remove the cover, press the catch on the side of the fuse box toward the engine and release the two tabs at the opposite side.

Always ensure the cover is correctly fitted after replacing or inspecting fuses.

The amperage of each fuse is shown on the inside of the fuse cover.



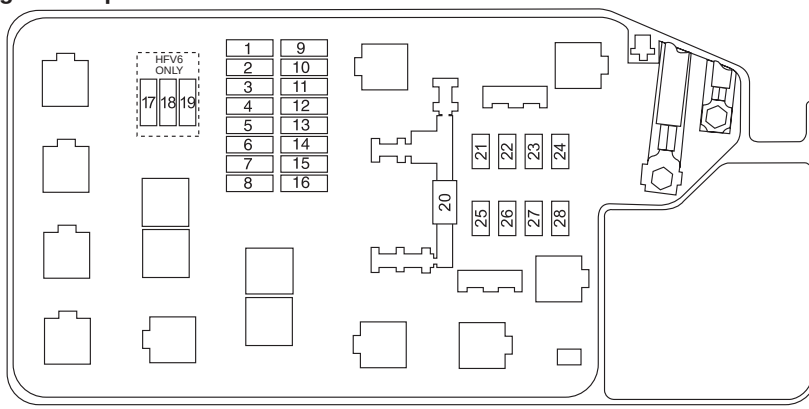
FUSE REPLACEMENT cont.



	Engine model				Engine model		
No	**Petrol L4**	**HFV6**	**Diesel**	**No**	**Petrol L4**	**HFV6**	**Diesel**
1	-	-	-	**15**	10 A Meter (+B)		
2	10 A Meter			**16**	10 A Room light		
3	-	10 A Trailer	-	**17**	-	-	-
4	15 A IG coil	10 A Engine	15 A TCM	**18**	15 A Stop light		
5	15 A Back light			**19**	-	-	-
6	10 A Turn light			**20**	10 A Starter		
7	10 A Elec. IG			**21**	10 A SRS		
8	10 A Engine	10 A ECU	10 A Engine		**Slow blow fuses**		
9	10 A ABS/4WD			**SBF 10**	20 A RR defog		
10	20 A Frt wiper			**SBF 11**	30 A Power window		
11	10 A Audio				**Connector/relays**		
12	20 A Cigar & Acc socket			**B-7**	-	RR defog	
13	15 A Audio (+B)			**B-8**	-	Power window	
14	20 A Door lock			**B-40**	-	-	-

FUSE REPLACEMENT cont.

Engine compartment

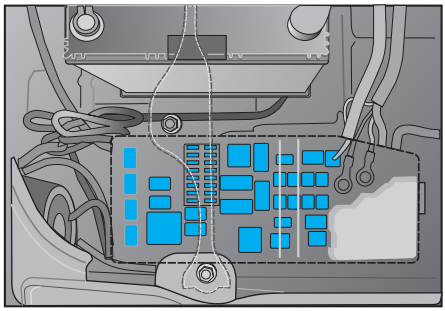


	Engine model				Engine model		
No	**Petrol L4**	**HFV6**	**Diesel**	**No**	**Petrol L4**	**HFV6**	**Diesel**
1	15 A ECM	15 A ECM	10 A ACG (S)	**16**	10 A Hazard		
2	-	15 A O_2 Sensor pre	10 A ECM (B)	**17**	-	15 A O_2 Sensor post	-
3	20 A Trailer	10 A ECM (B)	10 A Fuel pump	**18**	-	15 A IGN. coil (RH)	-
4	10 A ACG (S)	10 A TCM/PIM (B)	10 A Engine	**19**	-	15 A IGN. coil (LH)	-
5	10 A H/light-high (RH)				**Slow blow fuses**		
6	10 A H/light-high (LH)			**20**	100 A Main	-	120 A Main
7	10 A H/light-low (RH)			**21**	–	20 A Frt fog light	40 A ABS-1
8	10 A H/light-low (LH)			**22**	–	60 A Rad. fan	20 A ABS-2
9	20 A Fuel pump	20 A Trailer		**23**	20 A Cond. Fan	20 A Fuel pump	40 A ECM
10	10 A O_2 Sensor	-	20 A Cond. fan	**24**	40 A IG-1		
11	10 A Tail light (RH)			**25**	–	30 A Blower	
12	10 A Illumi & tail light (LH)			**26**	20 A Frt fog light	40 A ABS-1	20 A Frt fog light
13	10 A A/C			**27**	30 A Blower	20 A ABS-2	60 A Glow
14	10 A 4WD			**28**	50 A IG-2	60 A IG-2	
15	10 A Horn						

FUSE REPLACEMENT cont.

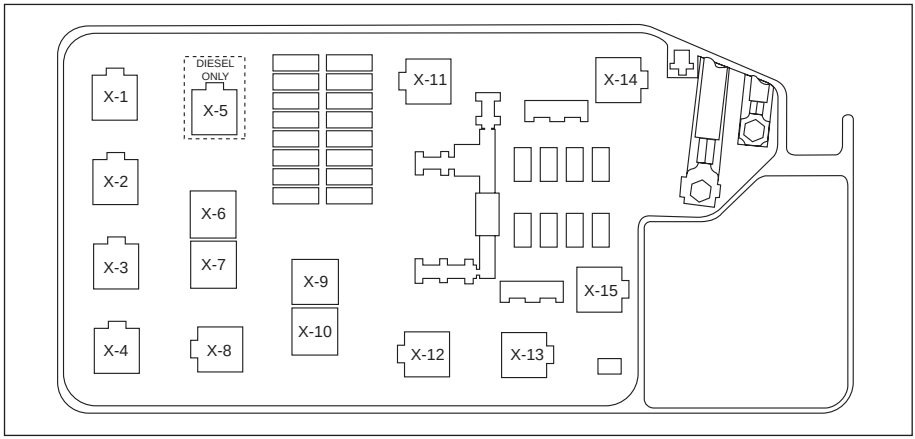
Relays

Relays are also contained in this fuse box; their location in the fuse box and their function is indicated on the inside of the fuse box cover.



WARNING

When replacing a fuse, ensure the use of a fuse, of the specified amperage. Never install a wire or similar as it could damage electrical components and cause a fire.



	Engine model				Engine model		
No	**Petrol L4**	**HFV6**	**Diesel**	**No**	**Petrol L4**	**HFV6**	**Diesel**
X-1	Tail light	Fog light		**X-9**	Frt fog light	-	Cond. fan
X-2	Fuel pump	Tail light		**X-10**	Cond. fan	-	Transmission
X-3	Horn			**X-11**	Heater		
X-4	H/light dimmer			**X-12**	-	ECM main	ECM main
X-5	-	-	Glow	**X-13**	Starter cut	Fuel pump	
X-6	Starter	Headlight	Headlight	**X-14**	A/C comp.		
X-7	Headlight	Headlight	Starter cut	**X-15**	A/C thermo	Starter	A/C thermo
X-8	-	-	Starter				

BULB REPLACEMENT

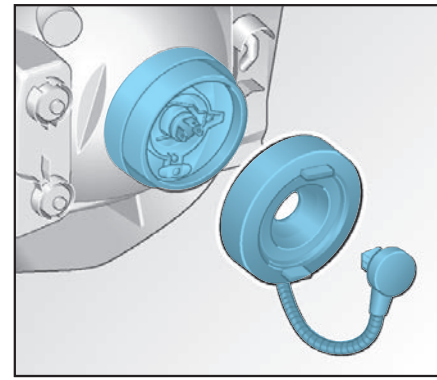
When replacing a bulb, switch off the related switch and the ignition to the **OFF** position.

Do not touch new bulbs with bare hands. Greasy fingers will cause stains, which evaporate, and result in a dull light. Grease spots on Halogen bulbs will, within a short time, lead to bulb failure. Inadvertently stained bulbs may be cleaned with tissue paper, or a clean, non-fuzzy cloth, using alcohol or white spirits.

When replacing bulbs do not exceed the wattage given on the defective bulb base.

Detailed procedures for headlight aiming are given in the relevant service manual for your vehicle. However, because headlight aiming is a safety item it is recommended that you have it carried out by your Holden Dealer.

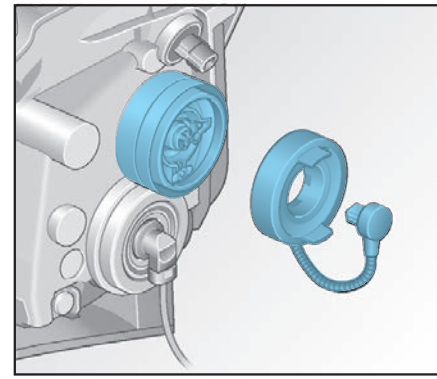
Halogen headlight system



1. Open the bonnet and engage the support.
2. Remove the connector.
3. Remove the rubber boot.
4. Release the bulb retaining clip.
5. Remove the bulb.
6. Insert a new bulb into the bulb holder without touching the glass.
7. Insert the new bulb and bulb holder so that the two lugs on the bulb holder engage in the recesses in the reflector.
8. Install the bulb retaining clip rubber boot and connector.
9. Check the light operation.

The bulb has a capacity of 60/55 watts.

Halogen headlight system (Projector type)



Low beam:

1. Open the bonnet and engage the support.
2. Remove the connector.
3. Remove the rubber boot.
4. Release the bulb retaining clip.
5. Remove the bulb.
6. Insert a new bulb into the bulb holder without touching the glass.
7. Insert the new bulb and bulb holder so that the two lugs on the bulb holder engage in the recesses in the reflector.
8. Install the bulb retaining clip rubber boot and connector.
9. Check the light operation.

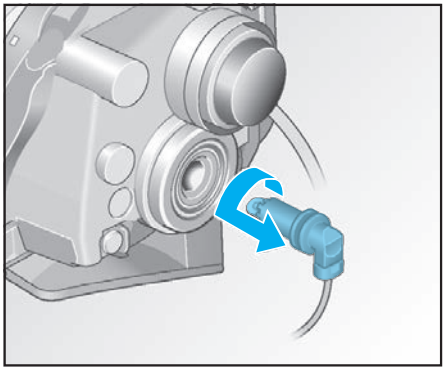
The bulb has a capacity of 55 watts.

BULB REPLACEMENT cont.

High beam:

1. Open the bonnet and engage the support.
2. Remove the bulb socket by turning it counter clockwise.
3. Remove the connector.
4. Remove the bulb from the socket.
5. Insert a new bulb into the bulb socket without touching the glass.
6. Install the connector.
7. Insert the bulb and socket into the reflector and rotate clockwise as far as it will allow.
8. Check the light operation.

The bulb has a capacity of 65 watts.

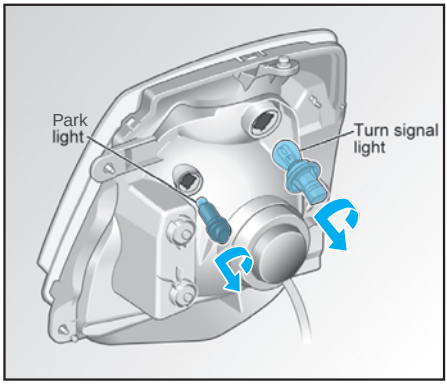


Park lights and front turn signal lights

1. Open the engine bonnet and engage the support.
2. Grip the bulb holder by the plug connector and rotate anticlockwise.
3. Remove the bulb holder from the reflector.
4. Remove the bulb from the bulb holder.
5. Insert a new bulb into the bulb holder, without touching the glass.
6. Install the bulb holder into the reflector and rotate clockwise as far as it will allow.
7. Check the light operation.

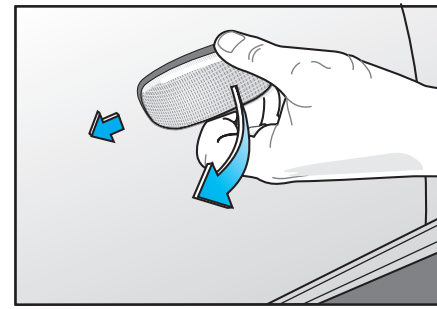
The bulbs have the following capacities:

- Park lights, 5 watts.
- Front turn signal lights, 21 watts (amber).



BULB REPLACEMENT cont.

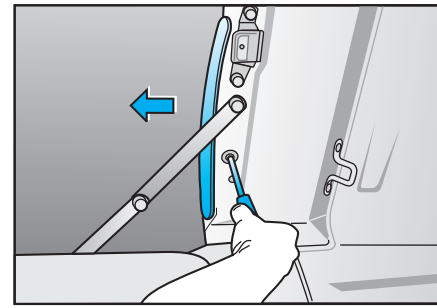
Side flasher lights



1. Grasp the lens at the rear, push forward and pull away from the body of the vehicle. Separate the bulb holder from the lens assembly by first rotating the bulb holder anticlockwise.
2. Disconnect the wiring harness connector. The bulb pulls straight out of the bulb holder.
3. Insert the new bulb into the bulb holder. Install the bulb holder into the lens housing.

   Note The bulb holder only fits into the lens housing one way. Therefore, keep turning the bulb holder clockwise until it fits into place and can be tightened.
4. Connect the wiring harness connector.
5. When inserting the light, first locate the rear of the housing into the body before pushing the front inward to engage the clip.
6. Check the light operation.

Rear combination lights

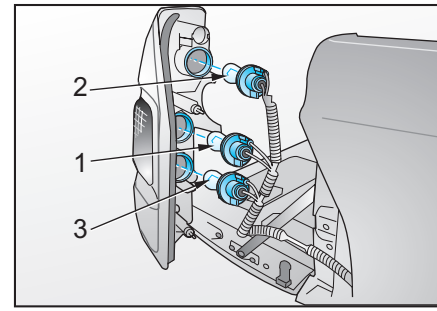


1. Unscrew the screws securing the lens.
2. Remove the bulb from the bulb holder.
3. Insert the new bulb.
4. Install the lens.

   Note Take care not to crack the lens when tightening the screws.
5. Check the light operation.

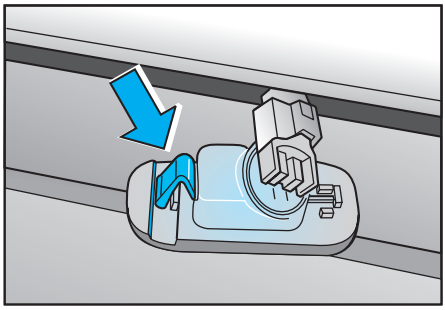
The bulbs have the following capacities:

- Turn signal lights, 21 watts (amber).
- Stop and tail lights, 21/5 watts.
- Reversing lights, 21 watts.



BULB REPLACEMENT cont.

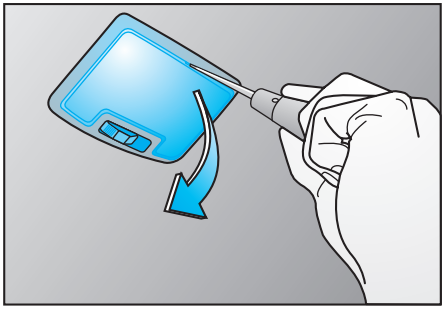
Licence plate lights



1. Remove the light assembly by releasing the catch located on the rear of the light.
2. Remove the lighting unit from the vehicle body.
3. Remove the bulb assembly from the lens by rotating the bulb assembly anticlockwise.
4. Remove the bulb.
5. Insert the new bulb and reinstall the bulb assembly to the lens by rotating clockwise.
6. Press the lens back into the light housing.
7. Check the light operation.

The bulb has a capacity of 5 watts.

Interior lights

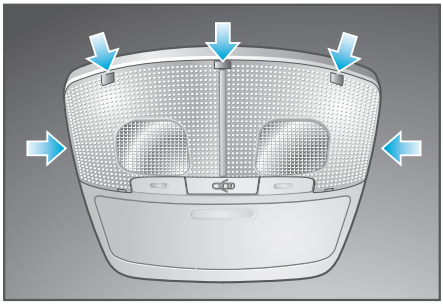


Before removing the lens, close the front doors so that the light is not live.

1. Lever out the lens by carefully inserting a flat-blade screwdriver between the lens and the light housing.
2. Press the light bulb sideways toward the spring clips to remove.
3. Insert the new bulb.
4. Press the lens back into the light housing.
5. Check the light operation.

The bulb has a capacity of 10 watts.

Map lights

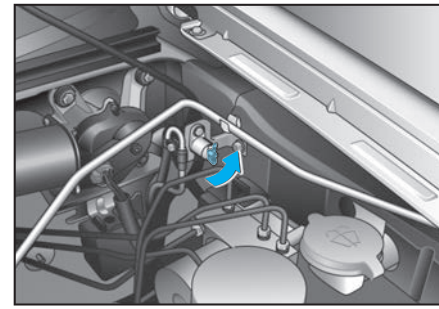


1. Carefully prise apart the lens assembly at the clips shown in the diagram.
2. Remove the bulb holder by turning it anticlockwise.
3. The bulb pulls straight out of the bulb holder.
4. Insert the new bulb into the bulb holder.
5. Install the lens assembly.
6. Check the light operation.

The bulb has a capacity of 5 watts.

DRAINING WATER SEPARATOR (DIESEL ONLY)

Drain the water separator immediately if the water separator indicator light illuminates.



1. With the engine off, open the bonnet and loosen the drain plug located on the left hand side of the engine compartment (3-4 turns).
2. Use a suitable container to catch the drained water.
3. Turn the ignition switch to the **ON** position for 10 seconds, and then to the **OFF** position for 10 seconds. Then, once again turn the ignition switch to the **ON** position for 10 seconds.
4. Tighten the drain plug firmly.
5. After starting the engine, check that there is no fuel leakage from the drain plug. Also check that the water separator indicator light has turned off.

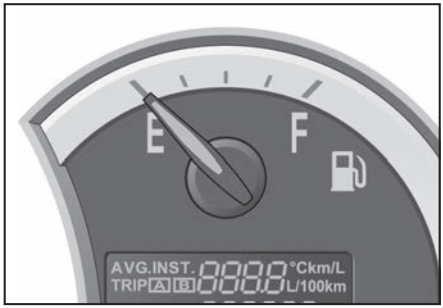
WARNING

- If the water separator requires frequent draining, have the fuel tank drained by your Holden Dealer.
- Confirm that there are no combustible materials under the drain hose, and use a suitable container to catch the drained water.

BLEEDING FUEL SYSTEM (DIESEL ONLY)

If the vehicle has run out of fuel, air might have entered the fuel system. With air in the fuel system, smooth flow of fuel into the engine is interrupted. To correct this, bleeding of the fuel system should be performed (after refuelling) as follows:

1. Before starting the engine, turn the ignition switch to the **ON** position. Wait 15 seconds. Return the switch to the **OFF** position. Repeat this procedure 5 times.
2. After starting the engine, allow it to idle for 10 minutes. Do not increase the engine speed above idle.
3. If the engine could not be started, perform the procedure again from step 1.



Note Insufficient air bleeding may cause the check engine indicator light to illuminate or improper engine performance. Contact your Holden Dealer.

NOTES

CHAPTER 7

Weekly checks

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*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

MISCELLANEOUS CHECKS

There are a few simple, weekly checks that the owner/operator is recommended to make. These are shown on the following pages.

As well as taking your vehicle to be serviced, refer to the Service/warranty booklet.

WARNING

- If the engine temperature is high, the cooling fan may remain on for several minutes after switching off the ignition. Therefore, the engine cooling fan can start working unexpectedly, even when the engine is not running and the ignition is off.
- Electronic ignition systems have a high ignition power. Do not touch the ignition system; this could be highly dangerous.

The following checks should also be regularly done to ensure safety of your vehicle.

Check that:

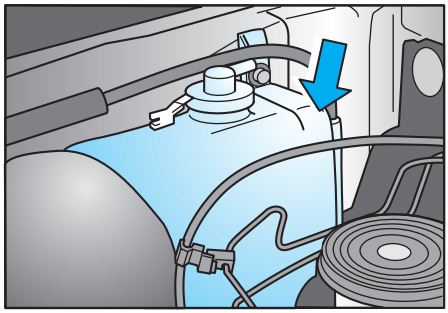
- All exterior lights are working and their appropriate interior indicator illuminates.
- Mirrors and glass are clean and not scratched.
- The aim of water on the windscreen is satisfactory.
- The condition of the wipers is satisfactory.
- The demister operates.
- The horn works.
- Check the condition and operation of all the seat belts. Check that buckles are clean and operating correctly. Remember that seat belts must never be worn twisted.

ENGINE COOLANT LEVEL

To check the coolant level

The level of the coolant should be checked weekly. This is simply a matter of looking at the level in the plastic container, called the coolant reservoir.

Check the level of the coolant and fill the coolant reservoir as required. If the level of the coolant in the reservoir is found to be lower than the **MIN** line, check the cooling system for leaks, then fill to bring the level up to the **MAX** line.



WARNING

- Do not over fill the coolant reservoir.
- Always check the coolant level when the engine is cold.

To add coolant

Ensure that the long life coolant in your vehicle conforms to Holden specifications. Refer to *Engines* in chapter 8.

If the coolant reservoir requires topping up, first pre-mix a solution of 50% specified coolant and 50% water.

Ensure the ignition is switched off.

Undo the cap on the top of the coolant reservoir, add the pre-mixed solution and secure the cap.

Failure to use the coolant which meets Holden's specification or maintaining the specified concentration, may result in voiding your warranty.

In emergency situations, plain water may be used temporarily until the correct Holden specified coolant is obtained (as soon as possible) from the nearest Holden Dealer.

The specified coolant works in three ways: it contains special corrosion inhibitors, it helps the cooling system in hot weather by increasing the boiling point and it protects against freezing down to -30 °C, provided the correct concentration is maintained.

If you regularly have to top up the cooling system, this may indicate that a problem exists. Contact your Holden Dealer.

WARNING

Corrosion inhibitors and antifreeze fluids are poisonous. Use extreme care when handling. If swallowed seek medical attention.

Refer to *Engine overheating* in chapter 6 if the engine overheats.

ENGINE OIL LEVEL

Check the oil level

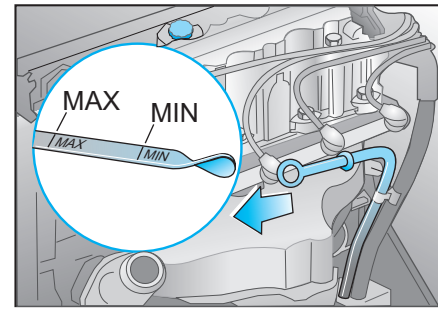
Check the oil level while the vehicle is parked on level ground and the engine is switched off and at normal operating temperature.

Before checking the oil level, wait a few minutes after switching the engine off, to allow the oil to settle.

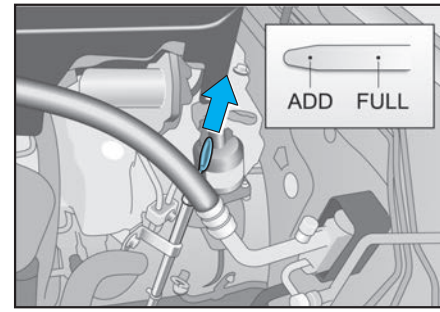
1. Remove the oil dipstick from the oil level tube.
2. Wipe the dipstick clean.
3. Insert the dipstick back into the oil level tube as far as it will go.
4. Wait for a few seconds before removing the dipstick again.

   The oil level should be maintained between the two marks, neither going above the **MAX** mark nor under the **MIN** mark.

   Note Remember to insert the dipstick firmly after taking the reading.



Petrol L4



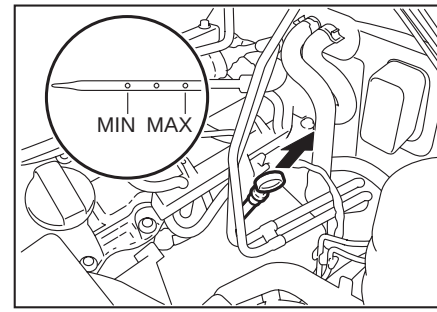
Diesel

To add oil

Use the correct oil for your vehicle. Refer to *Specifications* in chapter 8.

1. Remove the engine oil cap.
2. Add the required amount of oil.
3. Wait a few minutes for the oil to settle, then check the oil level again. When the oil level is correct, replace the oil cap and dipstick and clean up any spilt oil.

   Note Non-detergent and other low quality oils are specifically not recommended. The use of break-in oil, tune up compounds, friction reducing compounds and other supplemental additives are not recommended. Their use would increase costs, may be detrimental to the operation of your vehicle and may void your New Vehicle Warranty, to the extent that Holden considers the non-recommended fluid to have affected the specifications or quality of your vehicle.



Petrol HFV6

ENGINE OIL CONSUMPTION

Every internal combustion engine uses a certain amount of oil, especially when running-in. The engine is dependant on oil for lubricating the cylinder walls, pistons, rings and valve stems. A thin film of oil is left on the cylinder walls, some of which is carried into the combustion chamber and burnt during the combustion process. This also applies to the film of oil on the valve stems which is drawn into the combustion chamber and burnt.

There are several other factors that contribute to the rate of oil consumption in your engine: worn pistons, rings, valve stems and guides; the way in which the vehicle is operated; the quality and grade of oil; the oil level, and dilution of the oil.

Operation of the vehicle

High speed driving and heavy towing increases engine temperature, which lowers oil viscosity, causing more oil to reach the combustion chamber and get burnt away.

Quality and grade of oil

Oil viscosity is a significant factor in oil consumption. If you use an oil which is too thin (low viscosity) your oil consumption will increase. Use only the recommended grades of oil.

Oil level

Maintaining a proper oil level is also an important factor in controlling oil consumption. An over full engine will splash oil onto the cylinder walls in quantities greater than the piston rings can control. This excess oil will be drawn into the combustion chamber and burnt, or may result in aeration of oil in the sump causing damage to the engine.

Dilution

Probably the most prevalent complaint of oil consumption comes from the driver whose vehicle is frequently driven at below normal operating temperatures. The oil becomes diluted by fuel and moisture which settles in the oil pan and may even raise the oil level creating a false reading on the oil level dipstick. For example, in a vehicle that has accumulated 1,500 km of short distance or intermittent city operation and has consumed a normal amount of oil, the level may not have dropped from the full mark, due to dilution. If this vehicle is driven for some distance at highway speeds on a warm day, the dilution elements evaporate, lowering the oil level and the motorist assumes the oil lost has been consumed in the highway operation.

If, after taking into account the above factors, you are still concerned that your engine has excessive oil consumption then you should discuss the situation with a Holden Dealer. Remember that an engines oil consumption should not be judged until it has run at least 7,000 km.

AUTOMATIC TRANSMISSION FLUID LEVEL

The automatic transmission fluid level will be checked by your Holden Dealer when the vehicle is serviced. If an oil leak is seen before the service is due you should consult a Holden Dealer as soon as possible. The transmission fluid level should be checked and the fluid replaced at the intervals shown in the *Maintenance schedule* of the Service/warranty booklet.

Automatic transmission fluid

Refer to *Transmissions* in chapter 8 for automatic transmission fluid type. You can buy this fluid from your Holden Dealer.

Checking transmission fluid level

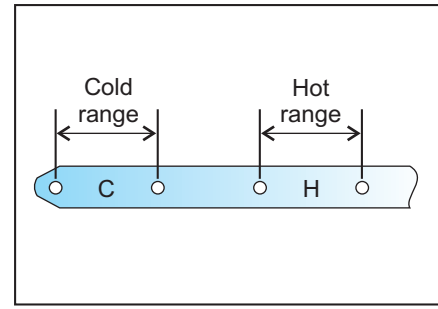
Note Over filling can cause foaming and loss of fluid. A low fluid level can cause slipping in the transmission. In either case, transmission damage can result.

To check the transmission fluid level, preform the following:

1. Ensure the vehicle is on a level surface.
2. Set the park brake and start the engine in **P** (park).
3. With the service brakes applied, move the shift lever through all of the gear ranges until it is returned to **P** (park).

   Note Transmission fluid level checks must be performed with the vehicle at normal operating temperatures. Inspections at any other temperatures should only be considered to be reference checks and may not reflect the actual fluid level.
4. Remove the dipstick that is located at the rear of the engine compartment on the right (petrol HFV6) or the left (diesel) side of the vehicle.
5. Wipe it clean and push it back in until the cap seats.
6. Pull out the dipstick and read the fluid level. The level should be between the two marks in the hot range.

   Note In very cold weather check the fluid only after the vehicle has completely warmed up. Add just enough fluid to fill the transmission to the full mark. **Do not overfill**.



Adding transmission fluid

Use only Holden specified automatic transmission fluid. Refer to *Specifications* in chapter 8 for the correct type.

1. Add the fluid in the dipstick tube (the same opening as the dipstick is stored in).
2. Wait one minute for the oil to settle (clean up any spilt fluid).
3. Check the oil level after filling as per the above procedure.

If the transmission fluid requires constant topping up, it could indicate that a fault exists. Contact your Holden Dealer immediately.

BRAKE AND CLUTCH FLUID LEVELS

Brake fluid level

WARNING

Brake fluid is poisonous and corrosive and would damage the paint finish of your vehicle if spilt.

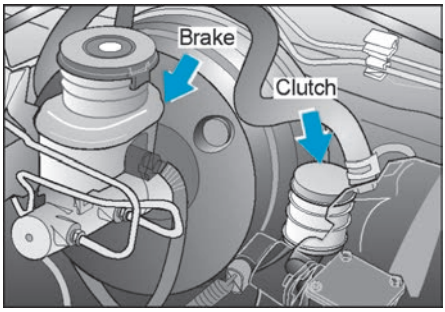
The brake fluid level should be checked weekly. The fluid level is visible through the container and should be maintained between the **MIN** and **MAX** level marks. If the fluid is between these levels, do not remove the cap as brake fluid will quickly absorb moisture if exposed to the atmosphere.

If fluid does need to be added, first ensure that the ignition is switched off.

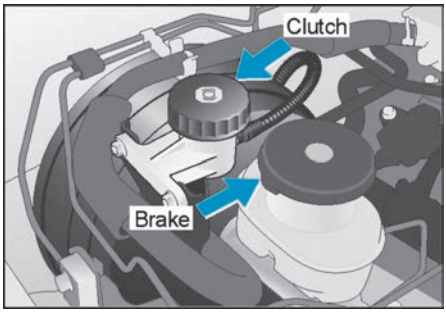
Wipe clean the sides of the cap and remove the cap. Top up with brake fluid. Refer to *Specifications* in chapter 8 for the correct brake fluid. Remember to replace the cap and clean any spilt fluid.

Note Use only new brake fluid. Use of old, used or inferior brake fluid may endanger the functioning of the brake system.

If the brake fluid requires constant topping up it could indicate that a fault exists. Contact your Holden Dealer immediately.



Petrol L4 and Diesel



Petrol HFV6

Clutch fluid level*

The clutch fluid level should be checked weekly. The fluid level is visible through the container and should be maintained between the **MIN** and **MAX** level marks. If the fluid is between these levels do not remove the cap, as the fluid will quickly absorb moisture if exposed to the atmosphere.

If fluid does need to be added, first ensure that the ignition is switched off.

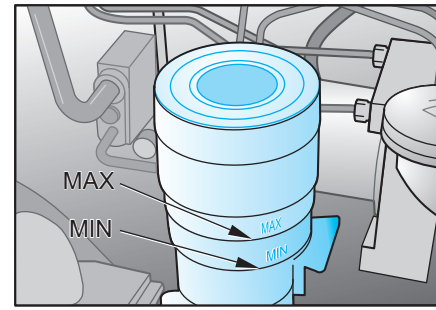
Wipe clean the sides of the cap and remove. Top up with heavy duty brake fluid (both the clutch system and the brake system use brake fluid) which meets the Holden specification number. Refer to *Specifications* in chapter 8. Remember to replace the cap and clean any spilt fluid.

Note Use only new fluid. Use of old, used or inferior fluid may endanger the functioning of the clutch system.

If the clutch fluid requires constant topping up it could indicate that a fault exists. Contact your Holden Dealer immediately.

POWER STEERING AND WASHER FLUID LEVELS

Power steering fluid level



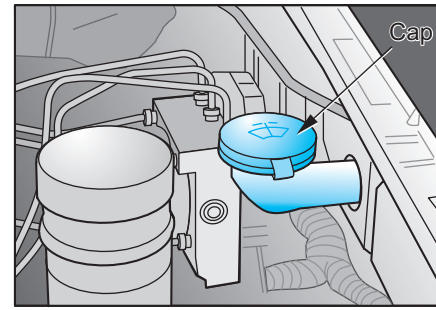
The level should be checked after the vehicle has been driven for a while (at least 20 minutes) so that the fluid is warm. A convenient time is when stopping for petrol.

Ensure the ignition is switched off.

When the fluid is cold the level should not fall below the **MIN** mark on the reservoir. When the vehicle has been driven for a while and the fluid is hot, the level should be near the **MAX** mark on the reservoir.

If power steering fluid is required, refer to *Specifications* in chapter 8. Do not overfill, and remember to replace the cap tightly and clean up any spilt fluid. If the power steering fluid requires constant topping up it could indicate that a fault exists. Contact your Holden Dealer immediately.

Washer fluid level



As washer fluid is constantly used up, the level should be checked and topped up weekly.

Check that the washer fluid reservoir is filled sufficiently with washer fluid.

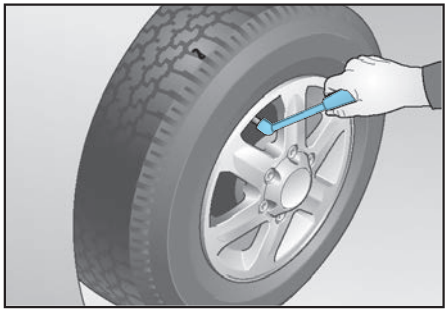
For a crystal clear windscreen, use the correct amount of windscreen washer solvent. Refer to *Cleaning products* in chapter 10 for the correct windscreen washer solvent.

Note Do not use ordinary soap or detergent as these not only froth up but will also damage the wiper rubbers.

Make sure the cap is secured.

TYRES

Tyre air pressure

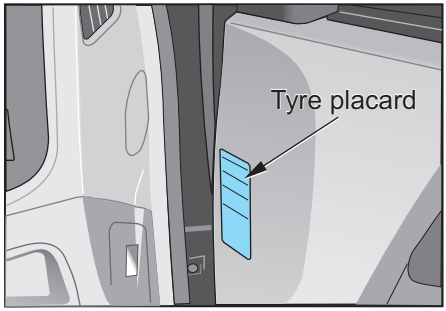


Weekly checking of the air pressure of your tyres (including the spare) ensures your safety, as well as reducing fuel consumption and increasing the life of your tyres.

For constant long distance or rough road driving, daily checking is recommended.

The correct pressure for your tyres is shown on the tyre placard located on the driver's door.

If the vehicle is heavily loaded, the recommended pressure for the tyres is increased (refer to the tyre placard on your vehicle). As the tyres are operating under greater load, the weekly air pressure check becomes even more important.



Tyre inflation pressure increases when the tyres have been driven more than 2 km. Therefore, the pressure should be checked when the tyres have been stationary for over three hours. If they must be checked immediately after driving, increase the pressure shown on the placard by 10%.

The inflation pressure in the tyres should be increased according to the load on the vehicle. Therefore, if the vehicle is loaded to half the maximum load (as shown on the compliance plate) the tyres should be inflated half way between the minimum and maximum pressures given on the tyre placard. Vehicles driven for prolonged periods over rough roads, particularly in outback conditions, should use the cold tyre inflation pressure on the tyre placard for maximum load condition.

Always use a tyre pressure gauge to check the tyres pressure; simply looking at the tyres is not sufficient.

If the pressure is too low, this can result in considerable tyre warm-up and internal damage, leading to tread separation and even to tyre blowout at high speeds. If the pressure is too high, this can result in reduced traction, increased risk of tyre blowout and excessive tyre wear.

Remember to replace any valve dust caps or extensions, as this stops dirt and moisture from fouling the valves. When checking the tyre air pressure, take a look at the condition of the tyre tread and inspect for stones or abnormal wear.

TYRES cont.

Tyre and rim condition

Driving over sharp edges can lead to hidden tyre damage and rim damage, which can lead to tyre blowout.

Drive over edges slowly and at right angles if possible. When parking, ensure the tyres are not pressed against the edge of the curb.

Check the tyres regularly for damage: stones, punctures, cuts, cracks, bulges etc. Check the rims for damage. Consult a Holden Dealer if in doubt.

Alignment and balance

Improper wheel alignment can cause the tyres to wear faster and to wear unevenly. It can also cause the vehicle to pull to the left or right.

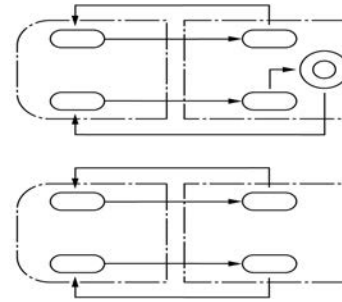
Out-of-balance wheels and tyres can cause annoying vibration and uneven tyre wear. If you suspect either of the above problems exist, have a wheel alignment and balance check carried out by your Holden Dealer.

Tyre rotation

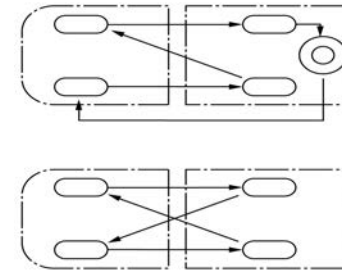
Front and rear tyres perform different jobs and can wear differently depending on the types of roads driven, your driving habits, wheel alignment, balance, tyre pressures etc.

Check the tread depth regularly. If the front tyres have more wear than the rear tyres, have both front wheels changed with the rear wheels so that the tyres with the deeper tread are on the front.

If the wheels are rotated it is recommended that the balance be checked at the same time.



The patterns above (either 4 tyre or 5 tyre) should be followed for normal tyre rotation; the patterns below can be used if one-sided wear is apparent on the tyres.



TYRES cont.

Replacement and repair

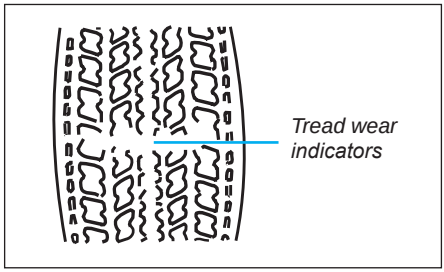
Replacing your factory fitted wheels and tyres with non specified wheels and tyres may affect your warranty as well as your insurance policy. Refer to the tyre placard on your vehicle for tyre size and load rating. See previously in this chapter. Using a different size or type of tyre may affect ride, handling, speedometer, vehicle ground clearance, tyre clearance or snow chain clearance.

Take care when using tyres with heavy treads, including tyres made for better grip in the wet. At sustained high speeds, this type of tyre will run at higher temperatures than standard tyres and consequently should only be operated within the limits recommended by the manufacturer. Any doubts about the tyres on your vehicle should be referred to your Holden Dealer.

New tyres should be fitted in pairs to the front. If replacing only one tyre, it should be paired on the same axle with the least worn of the other three.

You should replace your tyres when:

- The tyres are worn to the point where the tread indicators appear, or the cord or fabric is showing. The tyres originally fitted to your vehicle have built-in tread indicators which show up when the tyres are worn.
- The tread or sidewall is cut, split, or cracked deep enough to expose the cord or fabric.
- The tyre has a bump or bulge in it, indicating some kind of internal damage.
- The tyre has a puncture, cut or other damage which can not be repaired because of the size or location of the damage.



Do not attempt to drive on the flat tyre more than is necessary to stop safely. Driving even a short distance can damage the tyre and wheel beyond repair. Tyres which have been repaired or retreaded cannot be driven safely at high speeds, therefore, their use is not recommended.

BATTERY

Battery maintenance

Your vehicle is fitted with a maintenance free battery, which means that the fluid level does not need to be checked.

WARNING

- Batteries emit an explosive gas mixture which may be ignited by sparks or naked flames. You should therefore keep sparks and flames away from the battery at all times. Never smoke near a battery.
- Batteries contain sulphuric acid. If acid contacts skin or clothing, flush immediately with a lot of water. In case of eye contact, flush with a lot of water and contact a doctor. Battery acid also damages paint and fabrics. To minimise damage, wash off immediately.
- Take care with all metal objects and tools including items you may wear (e.g. jewellery, rings and metal watch bands) near battery terminals. Metal objects that touch battery terminals can cause sparks and serious heat burns to the user or wearer.
- Never disconnect the battery when the engine is running.

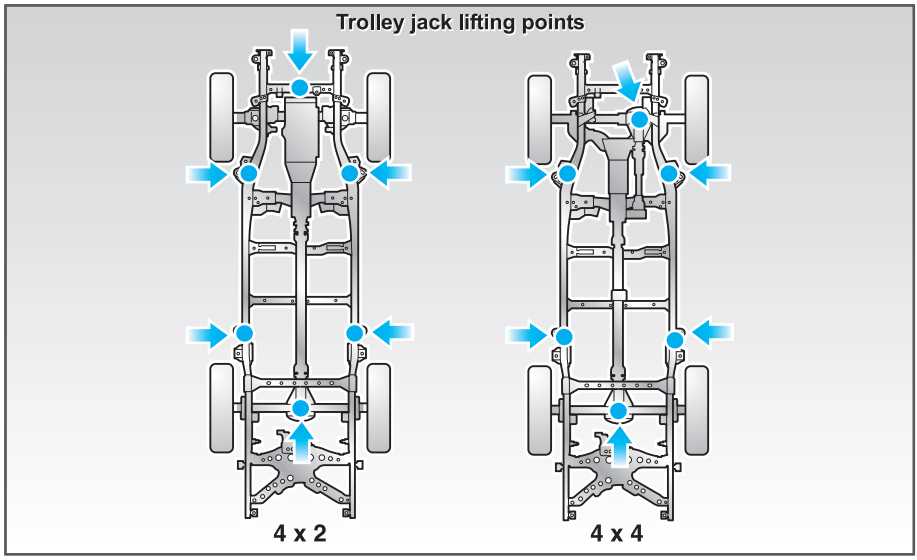
TROLLEY JACK LOCATIONS

Always use the jack locations. Refer to *Flat tyre* in chapter 6, when using the original jack supplied with the vehicle. This jack has been designed to correctly and safely lift the vehicle, provided the warnings in chapter 6 are observed.

However, if using a trolley jack to raise the vehicle, it is important that the jack be positioned under the suspension cross member or hoist pad locations.

WARNING

- Do not jack under the suspension control arms.
- The vehicle should always be supported by jack stands when raised.



NOTES

CHAPTER 8

Specifications

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*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

SPECIFICATIONS – PETROL L4 ENGINES

Engine Type	**Petrol L4**
Description	4 cylinder, SOHC, multi-point fuel injection
Piston displacement	2,405 cc
Power, KW @ RPM	Refer to holden.com.au
Torque, Nm @ RPM	Refer to holden.com.au
Oil specification	Use API SJ grade oil, or better, 10W-30 viscosity. For prolonged use in snow areas, use 5W-30 viscosity.
Oil capacity inc filter	4.7 litres
Coolant capacity	7.3 litres
Coolant specification	50% water and 50% coolant, conforming to Holden's specification No. HN2217, part number 92141458 (1 litre) or 92141457 (20 litres).
Brake and clutch fluid	Hydraulic brake fluid SAE J1704 – DOT4 grade.
Power steering fluid	DEXRON® - III automatic transmission fluid.
Fuel tank capacity	76 litres
Battery	Maintenance free 12 V. 360 cold cranking amps (CCA), 45 amp hours.
Remote control battery	CR2032

SPECIFICATIONS – PETROL HFV6 ENGINES

Engine Type	**Petrol HFV6**
Description	6 cylinder, 24 valve, DOHC, electronic fuel injection
Piston displacement	3,565cc
Power, KW @ RPM	Refer to holden.com.au
Torque, Nm @ RPM	Refer to holden.com.au
Oil specification	Use SAE 5W/30 or 10W/30 API SL/SM ILSAC GF-3/GF-4 oil.
Oil capacity inc filter	6.5 litres
Coolant capacity	12.3 litres (man) 12.2 litres (auto)
Coolant specification	50% water and 50% Extended life anti-freeze coolant, conforming to Holden's specification No. GM 6277M, Part Number 92145527 (5 litres).
Brake and clutch fluid	Hydraulic brake fluid SAE J1704 – DOT4 grade.
Power steering fluid	DEXRON® - III automatic transmission fluid.
Fuel tank capacity	76 litres
Battery	Maintenance free 12 V. 630 cold cranking amps (CCA), 79.2 amp hours.
Remote control battery	CR2032

SPECIFICATIONS – DIESEL ENGINES

Engine Type	**Diesel 4JJ1-TC HI**
Description	4 cylinder, intercooled turbo charged, electronic direct injection
Piston displacement	2,999 cc
Power, KW @ RPM	Refer to holden.com.au
Torque, Nm @ RPM	Refer to holden.com.au
Oil specification	Use API CG grade, or better, or ACEA B1 / B3 15W-30, 20W-40, 20W-50 viscosity. For prolonged use in snow areas use 10W-30. Refer to oil viscosity charts, page 8-7.
Oil capacity inc filter	8 litres
Coolant capacity	9.3 litres (man) 9.2 litres (auto)
Coolant specification	50% water and 50% coolant, conforming to Holden's specification No. HN2217, part number 92141458 (1 litre) or 92141457 (20 litres).
Brake and clutch fluid	Hydraulic brake fluid SAE J1704 – DOT4 grade.
Power steering fluid	DEXRON® - III automatic transmission fluid.
Fuel tank capacity	76 litres
Battery	Maintenance free 12 V. 622 cold cranking amps (CCA), 80 amp hours.
Remote control battery	CR2032

TRANSMISSIONS

Transmissions

Engine	Diesel	Petrol L4	Petrol HFV6	Petrol HFV6	Diesel
Transmission Type:	Manual	Manual	Manual	Automatic	Automatic
Transmission Code:	MUX5S	MUA5G	AR5	4L60-E	AW30-40LE
Transmission Oil	3 litres	2.95 litres	2.2 L - 2WD 2.3 L - 4WD	7.9 litres	8.7 litres
	Use same oil as used in engine, or SAE 5W-30		SAE 75W-90 GL3	Dexron® III automatic transmission fluid	Esso JWS 3309 conforming to Holden spec HN2414 automatic transmission fluid
Transfer	1.30 litres Use same oil as used in engine, or SAE 5W-30				

AXLES AND LUBRICANTS

Axles

Axle(s)	4WD Front	2WD Rear DX model	2WD & 4WD Rear LT / LX model
Description	Non LSD	Non LSD	LSD
Fluid type	Gear oil GL5 grade	Gear oil GL5 grade	LSD gear oil GL5 grade
Fluid capacity	1.4 litres	2.4 litres	2.4 litres
Viscosity	Use SAE 85 W/140 GL5	Use SAE 85W/140 GL5	Use LSD SAE 85W/140 GL5

LSD = Limited slip differential

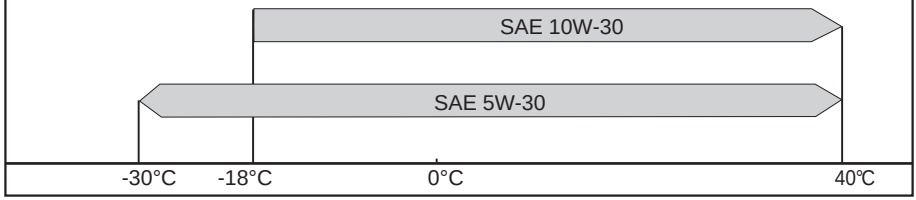
General lubricants

Brake and clutch pedal pivots	NLGI No.2 Lithium grease with 10% molydenum disulphide
Wheel bearings	Wheel bearing grease to Holden HN1227 specification
Universal joint and propeller shaft sliding yoke	NLGI No.2 Lithium grease with 10% molydenum disulphide
Chassis, park brake cables	NLGI No. 2 Multipurpose grease (lithium soap)

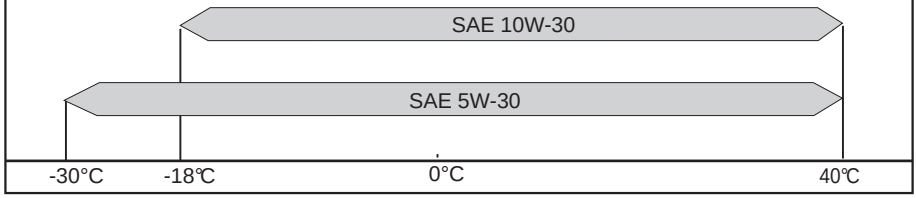
RECOMMENDED OIL VISCOSITY/AMBIENT TEMP

Oil viscosity

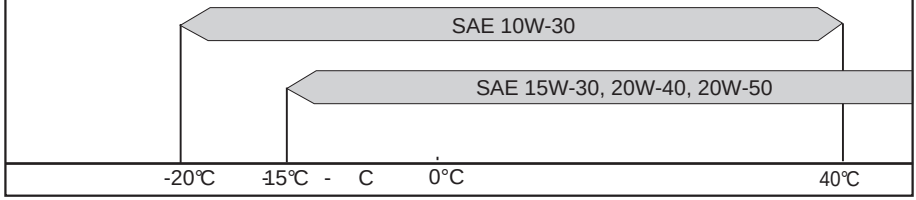
ENGINE: Y24SE L4 Petrol
OIL CLASSIFICATION: API SJ



ENGINE: HFV6 Petrol
OIL CLASSIFICATION: API SL & SM, ILSAC GF-3/GF-4



ENGINE: 4JJ1-TC Diesel
OIL CLASSIFICATION: API CG, ACEA B1/B3



DIMENSIONS AND WHEELS/TYRES

Dimensions

	DX 2WD Low ride suspension	LX / LT 2WD and 4WD Hi ride suspension
Wheel base	3,050 mm	
Extra long wheel base	3,200 mm	
Wheel track front	1,460 mm (14” tyres)	1,515 mm (15" tyres) 1,520 mm (16" tyres)
Wheel track rear	1,460 mm (14” tyres)	1,520 mm (15" tyres) 1,525 mm (16" tyres)
Minimum ground clearance	190 mm (14” tyres)	210 mm (15" tyres) 225 mm (16" tyres)

Wheel/tyre sizes

	2WD		4WD	
	Wheel	Tyre	Wheel	Tyre
DX	14” x 5.5” steel	195R 14C	–	–
LX	15” x 6.5” steel	215/70R 15C (4JJ1-TC HI) 225/75R 15C (HFV6)	16” x 7.0” steel	245/70R 16
LT	16” x 7.0” alloy	245/70R 16	16” x 7.0” alloy	245/70R 16

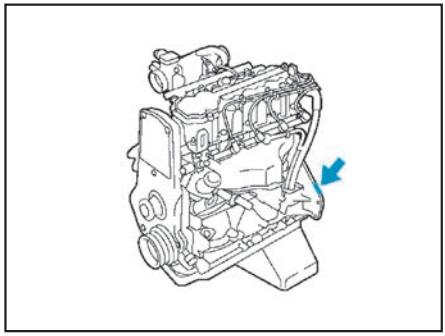
IDENTIFICATION PLATES

Engine number location

The engine number is located in two places: On a plate in front of the radiator (refer to engine no. V.I.N. plate further on in this chapter) and on the cylinder block. The following illustrations show the location of the engine number on the cylinder block.

- Engine serial number petrol L4:

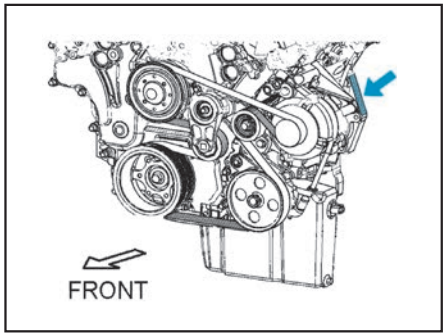
  The 2.4 litre engine serial number is stamped on a pad located at the rear, passenger side of the cylinder block.



Petrol L4 engine

- Engine serial number petrol HFV6:

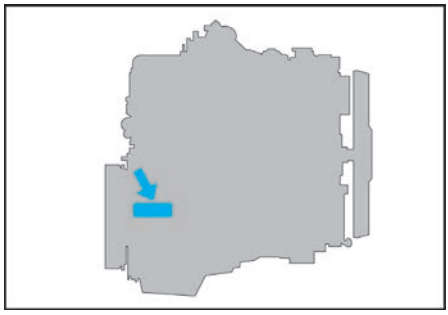
  The 3.6 litre engine serial number is stamped on the left-hand rear of the cylinder block.



Petrol HFV6 engine

- Engine serial number diesel:

  The 3.0 litre engine serial number is stamped at the rear, driver's side of the cylinder block.



Diesel engine

IDENTIFICATION PLATES cont.

Tyre pressure placard

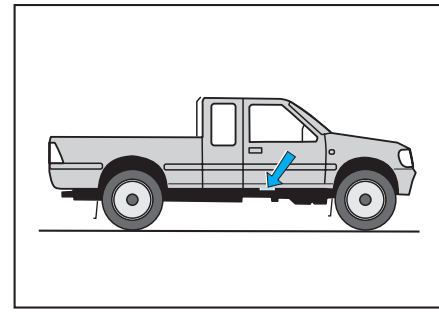
The tyre pressure placard is on the driver's door trim.

Emission label

The emission label is underneath the bonnet.

Vehicle Identification Number (V.I.N)

The V.I.N. is stamped on the right-hand side of the chassis side member, under the driver's door.



The International Standards Organisation Vehicle Identification Number (ISOVIN)

The ISOVIN is shown on the compliance plate, option plate and on the body. The ISOVIN number is used for identification of spare parts.

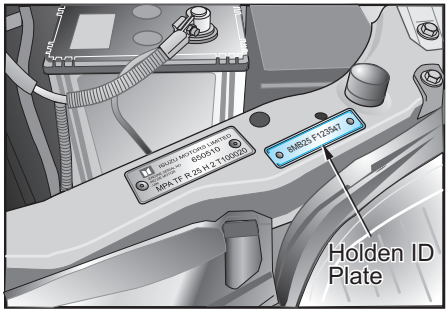
MPA TF R 27 H 7 T100020

- T100020 — Sequential production serial number.
- 7 — Model year code: 6 = 2006, 7 = 2007, etc.
- H — Wheel base: H = long; J = extra long.
- 27 — Engine: 32 = Y24SE 2.4 litre L4 petrol. 27 = HFV6 3.6 litre HFV6 petrol. 85 = 4JJ1-TC 3.0 litre diesel.
- R — Drive: R = 2WD; S=4WD.
- TF — Identification code.
- MPA — Manufacturer identifier.

IDENTIFICATION PLATES cont.

Holden identification plate*

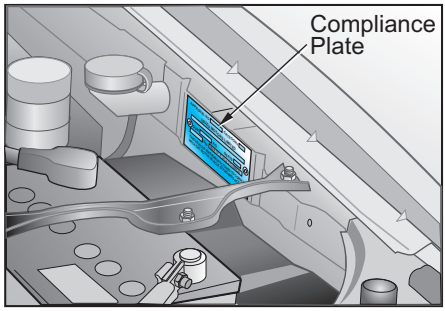
The Holden number on the Holden identification plate is used for warranty identification and Roadside Assistance identification.



Compliance plate

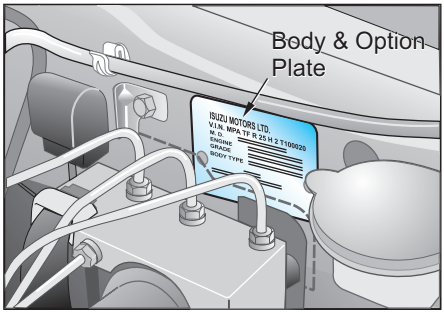
The compliance plate shows the approval number, category, manufacturer, model name and model code, Gross Vehicle Mass (GVM), seating capacity, month and year of manufacture, and the Vehicle Identification Number (V.I.N.).

Example of manufacturer model name and model code is: HOLDEN RA RODEO 4WD.



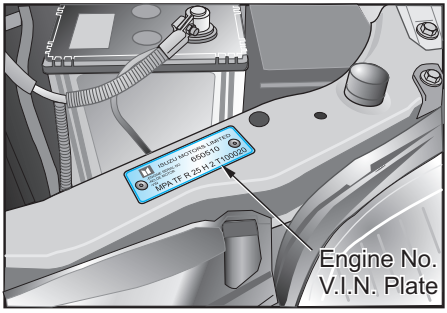
Body and option identification plate

The body and option plate shows body style, body serial number, paint and trim colour combination, paint number, engine transmissions, axle ratio options and built date. The built date is defined as 'the date of manufacture' by the calendar month and year in which the body shell and power train sub-assemblies are co-joined or moved from the production line.



Engine no. V.I.N. plate

The engine no. V.I.N. plate shows the engine number and the Vehicle Identification Number (V.I.N.).



NOTES

CHAPTER 9

Tow and load

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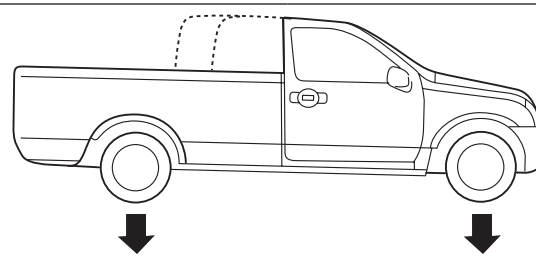
Towing 9-4
Attaching a trailer.....9-6
Towing precautions.....9-7

*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

LOADING THE VEHICLE

MAXIMUM FRONT AND REAR AXLE LOADS

Do not exceed the maximum axle loads shown in the diagram, including the weight of any fitted accessories. If unsure, the vehicle should be weighed at a weighbridge. This ensures the vehicle's axles have sufficient strength to carry the total weight of body and mechanicals, plus cargo and passengers, and still retain a considerable capacity safety margin to cope with weight transfer as the vehicle brakes, accelerates, corners and goes over bumps.



Vehicle	Rear axle load (kg)	Front axle load (kg)
2WD	1,680	1,200
4WD	1,680	1,300

Note Refer to the vehicle's compliance plate for gross vehicle mass (GVM) figures.

Carrying capacity

Carrying capacity is the maximum capacity of the vehicle for the carriage of all nonstandard items including cargo carrying devices (for example, tray or body, if applicable), the cargo itself, occupants, optional equipment and accessories. Light commercial vehicles, depending on their model and specification, have different carrying capacities.

CARRYING PORTABLE GAS CYLINDERS IN VEHICLES

WARNING

Gas cylinders can leak, creating a risk of fire or explosion. As a precaution, ensure adequate ventilation when carrying gas cylinders. They must be restrained from rolling around, and where possible, placed in the load area of the vehicle. It is recommended that if gas cylinders are frequently transported, that a purpose-built carrying compartment be used. Transportation of gas cylinders is regulated by legislation in some states.

LOADING THE VEHICLE cont.

NOTES ON LOADING THE VEHICLE

- Place heavy objects in the rear tray area as far forward as possible against the forward end of the tray. When stacking objects, place the heavier objects at the bottom. Unsecured objects in the rear tray area could be thrown forward with great force during heavy braking or in an accident.
- Heavy objects can slip when the vehicle is braking heavily or driven around a bend, and the handling of the vehicle may change.
- Do not place objects on the dashboard above the instrument panel. They are reflected in the glass, obstruct the driver's view and may be thrown through the vehicle in the event of heavy braking.
- Driving with a roof load increases the sensitivity of the vehicle to cross winds and affects vehicle handling owing to the higher centre of gravity of the vehicle.
- Do not place objects in the area where the airbags inflate. Objects can cause injury if the airbags are deployed.

*ROOF RACKS**

Distribute the load evenly and secure tightly with straps so that it cannot slip. Roof rack loads alter the handling of a vehicle, due to a change in the centre of gravity. When carrying loads on the roof rack, avoid hard braking, abrupt swerving or sharp steering.

WARNING

The load, including the weight of the roof rack, must not exceed 100 kg. Distribute the load evenly.

Note Remember the weight of the roof rack and its load must be included when calculating the total load.

TOWING

TRAILERS

The word 'trailer' is used throughout this section and is intended to include all types of towed vehicles, such as a caravan, boat trailer or any other special purpose trailer.

TOWING

The vehicle is designed primarily as a light commercial vehicle, so handling, durability and economy may be affected by towing a trailer.

Refer to Towing equipment in this chapter to see which equipment is specified as essential and which equipment is recommended for the weight you are towing. Your Holden Dealer will help supply and install towing equipment to suit your requirements.

OVERLOADING

Never exceed the loads given for the towing equipment fitted to the vehicle. For your safety and the vehicle's durability, all essential equipment must be fitted. Otherwise you may void the New Vehicle Warranty, to the extent that Holden considers the overloading or missing equipment to have affected the specifications or quality of the vehicle.

MAXIMUM TOWING CAPACITIES (KG) – BRAKED TRAILER

Vehicle type	**4x2**
Petrol L4 engines	2,000
Petrol HFV6 engines	2,500
Diesel engines	2,500

Vehicle type	**4x4**
Petrol HFV6 engines	2,500
Diesel engines	3,000

Note The recommended maximum unbraked towing capacity for all vehicles is 750 kg.

TOWING cont.

TOWING EQUIPMENT

The following table shows which towing equipment is essential, according to the total mass to be towed.

For your safety and your vehicle's durability, all equipment marked 'mandatory' must be correctly installed and used. Otherwise you may void your New Vehicle Warranty, to the extent that Holden considers the overloading, missing equipment or misuse, to have affected the specifications or quality of your vehicle.

WARNING

Holden towing equipment is recommended where it is available. Where it is not available, no recommendation is made as to the make of equipment which should be used. Holden will not accept liability for defects occurring in towing equipment not marketed by Holden or for defects in the vehicle arising from the use of such equipment or for loss or injury caused by use of such equipment. The use of such equipment may void your New Vehicle Warranty, to the extent that Holden considers the non-recommended equipment affects the specifications or quality of your Holden vehicle. It is inadvisable to mix and match different brands of towing equipment, as equipment is usually designed as an integrated package.

Tow load	Mandatory equipment
Up to 750 kg	Holden genuine tow bar.
	Holden trailer wiring harness.
	Electric or hydraulic brakes on the trailer if the loaded trailer weighs more than 750 kg.
	Load distribution hitch, when the tow bar ball load is over 150 kg.
Between 750 kg and 3000 kg	Holden genuine tow bar.
	Holden trailer wiring harness.
	Electric or hydraulic brakes on the trailer.
	Load distribution hitch, when the tow bar ball load is over 150 kg.

Note Refer to the maximum towing capacities table on the previous page for model specific towing capacities.

Load distribution hitch

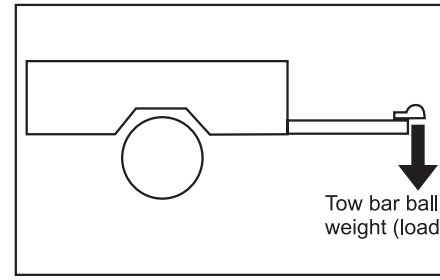
- A load distribution hitch is recommended when towing more than 750 kg.
- A load distribution hitch is designed to raise the rear of the vehicle and transfer a portion or the load to the front wheels when the loaded trailer is hitched.
- The loaded vehicle and trailer should be level, that is, parallel to the ground.

WARNING

Factory fitted rear steps on LT models are not designed for towing.

ATTACHING A TRAILER

Recommended procedure for attaching a trailer



When a trailer is connected to the towing vehicle, some of the weight of the trailer is applied through the tow ball to the tow bar and towing vehicle. This weight is called the ‘tow bar ball weight’ or ‘ball load’.

Note If the ball load is too light or too heavy, the steering, handling and ride characteristics of the vehicle can be adversely affected.

As a general guideline, for single axle trailers, the ball load should be approximately 10% of the loaded trailer mass. For heavy trailers with more than one axle, the ball load should be in the range 5% - 10% of the loaded trailer mass.

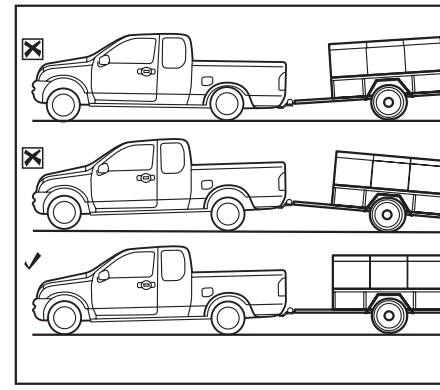
Check the ball load capacity of your towing equipment. This may be called the ‘Maximum Down Load’, ‘Maximum Vertical Load’, ‘Maximum Ball Load’ or similar and will be specified on your tow bar.

Establish a target ball load that is in accordance with the recommendations (above) and within the capacity of the towing equipment.

Check the ball load (compare with the target) before coupling the trailer to the towing vehicle.

The ball load can be adjusted by redistributing the contents of the trailer ie. by moving the contents of the trailer forward or backward within the trailer so as to change the trailer’s balance.

All towing (before you begin)



Axle loads must not be exceeded when the tow bar ball weight is included. Refer previously in this chapter for maximum axle loads. If maximum axle loads are exceeded, sufficient weight should be removed from the rear of the vehicle and transferred onto the trailer.

Ensure the weight of the packed trailer is not greater than the towing capacity of the Holden approved tow bar fitted to the vehicle.

TOWING PRECAUTIONS

TOWING PRECAUTIONS

- When heavily loading the vehicle or when towing, the tyres should be inflated to the maximum recommended pressure. Refer to *Tyres* in chapter 7 for tyre placard location and information about tyre pressures.
- Ensure that a load distribution hitch is correctly distributing the tow ball load. Refer to *Towing equipment* previously in this chapter.
- Tighten the tow ball retaining nut to 175 Nm (Newton metres) and check the torque frequently.
- Vehicles handle differently when towing. It is a good idea to make a couple of short distance trips with the trailer before setting off on a longer journey.
- Have the vehicle correctly maintained and serviced.
- Have the trailer maintained and serviced, with particular attention given to the condition of the brakes, tyres, suspension, wheel bearings, towing coupling and lighting.
- Use an extended-arm mirror on both sides of the vehicle.
- Headlamps may need re-aiming after the loaded trailer has been hitched, particularly if a load distribution hitch is not used.
- Use a lower gear, in conjunction with the brakes, when descending steep hills.
- Do not use axle-mounted hitches. They can cause damage to the axle housing, wheel bearings, wheels and tyres.
- Ensure that the tow bar does not obscure the rear licence plate. If necessary, remove the tow bar tongue when it is not required for towing.
- Trailer Brakes:
  - Trailer brakes are mandatory on trailers weighing 750 kg and over when loaded. The brakes on the trailer must be designed to cope with the braking requirements of that trailer under all towing conditions, without adversely affecting the brakes on the vehicle.

TOWING PRECAUTIONS

Fitting accessories (bull bars, driving lights, insect screens, etc.)

When fitting accessories, take care not to restrict airflow through the air conditioner condenser and the radiator, otherwise engine overheating and/or poor air conditioning performance may result.

The mass of all accessories must be considered when evaluating the vehicle's overall loaded condition.

Remember that bull bars may affect airbag operation. Refer to *Airbags* in chapter 3 for details.

Running in before towing

Holden recommends that you drive your new vehicle for at least 1,500 km before towing. If you must tow in the first 1,500 km of the vehicles life, do not exceed 80 km/h.

The same applies if the vehicle is equipped with a new or reconditioned engine, transmission or axle.

Off road loading and towing

Driving the vehicle off-road may induce higher loads than normal on-road driving. To reduce the risk of damage to your vehicle (and trailer) and improve safety when operating off-road, reduce the vehicle speed and minimise the load being carried (or towed).

CHAPTER 10

Cleaning

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*The asterisk signifies equipment options not in all vehicles; model variants, engine options, optional equipment and Genuine Holden Accessories (and Parts).

INTERIOR CLEANING

WARNING

Many cleaners may be toxic, flammable or may damage the interior. When cleaning the interior, avoid volatile cleaners such as: acetone, lacquer thinners, enamel reducers, nail polish removers, or cleaners such as laundry soaps, bleaches or reducing agents. Never use carbon tetrachloride, gasoline or naphtha for any cleaning purpose. Be sure the vehicle is well ventilated while using any cleaners and always follow the cleaning manufacturer's recommendations.

Care and cleaning of upholstery

Dust and dirt which accumulates on upholstery should be removed every few weeks; more often with constant driving. This can be done readily with a vacuum cleaner. Before attempting to remove spots and stains, it is necessary to determine as accurately as possible:

- The type of fabric.
- The nature and age of the stain.
- The effect of the stain removal agent upon the colour, structure and general appearance of the upholstery.

It is essential that stains be removed as soon as possible after they have been made. If they are allowed to remain on the fabric for any length of time they very often become oxidised or set, and removal becomes difficult, if not impossible.

Cleaning PVC coated fabrics

Vinyl (PVC) coated fabrics are used for seating, head linings and auxiliary trimming. The grades used vary according to their function. PVC fabrics are generally made by coating fabric with synthetic resins. Care of PVC fabrics is a relatively simple but important matter. The surface should be wiped over with a dry cloth during the regular cleaning of the vehicle.

Should dirt accumulate and become embedded in the material pattern, the following procedure is recommended.

1. Using lukewarm water and soap, work up thick suds on a piece of cheesecloth, and apply to the surface. A soft bristle brush can be used to remove stubborn stains or dirt embedded in the grain of the material.
2. Repeat using only a damp cloth and no soap.
3. Wipe dry with a soft cloth.

The above cleaning instructions also apply to the rubber floor mats.

Cleaning leather trim*

To remove surface dust and grit, regularly wipe leather with 'Softly' or similar or mild detergent in warm water using a soft cloth or sponge. Clean leather every 3 months with Holden Leather Cleaner or a mild saddle soap and a damp soft cloth to remove in-ground dirt which is not visible. Allow leather to dry naturally and apply Holden Leather Protector or a colourless bee's wax dressing. To revitalise the leather upholstery use Holden Leather Revitaliser.

INTERIOR CLEANING cont.

Cleaning cloth trim

Where the seats in your vehicle are upholstered with cloth, the following instructions should be observed.

- Most loose dirt and dust can be removed by a vacuum cleaner or soft brush.
- Do not use a whisk broom or a coarse hair brush.
- If normal soiling should take place it is recommended that the fabric be sponged lightly with warm water containing a detergent and a small amount of ammonia. The fabric should then be rubbed lightly, and if necessary, sponged again to remove anything stubborn. Soak up excess fluid with a dry cloth.

Vehicles with airbags

Use only a dry cloth or mild cleaner to clean the steering wheel and instrument panel. Do not use any aggressive cleaning agents.

Cleaning carpet

Thoroughly brush or vacuum the carpet. In many instances the carpet may require no further cleaning. If the carpet is extremely soiled, thoroughly vacuum it to remove loose dirt then, using a good quality carpet cleaner, clean approximately one square foot at a time. After each area is cleaned, remove as much of the cleaner as possible with a vacuum cleaner.

Cleaning seat belts

Cleaning of seat belts can be carried out by using a mild non-abrasive soap and lukewarm water. After washing be sure to thoroughly sponge the washing solution out of the belts.

WARNING

Do not bleach or dye seat belts since this may severely weaken them.

Cleaning interior glass

The interior glass area of the vehicle should be cleaned using Holden Glass Cleaner with a clean soft cloth. Care must be taken when cleaning inside the rear window so as not to damage the demister.

Never use abrasive cleaners on any vehicle glass, as they may cause scratches.

CARING FOR PAINT

To help preserve that shiny new vehicle finish, special attention should be given to correctly treating those conditions that can damage the paint.

Road bloom: If, over a long period of time, oils, dirt, exhaust and other pollutants are allowed to build up, they may combine to affect the paint finish.

Etching: Tree sap, bird droppings, salt water and other natural deposits can, if allowed to stay on the paint, leave an etching or scarring.

Pitting: Tar spots and some industrial fallout can react chemically and may cause pitting to the surface of the paint.

Paint inspection

Regular inspection of the vehicle should be made for scratch marks, cracks or damaged areas, all of which could develop rust. Any deep scratches, cracks or break-down in the finish should be repaired without delay. Care should be taken to ensure that any rusting is counteracted immediately, otherwise rust 'creep' will extend beyond the damaged area, particularly in tropical or coastal areas, where the moist, or salt-laden air accelerates rusting. The paint finish of the vehicle gives a very high degree of protection against the weather, but it should be realised that wear and deterioration occur when the vehicle is exposed to elements for prolonged periods. The vehicle therefore should be garaged whenever possible.

To prevent damage to the paint surface, foreign matter should always be removed as soon as possible. Due to the acidity, it is recommended that foreign matter such as bird droppings be removed within 24 hours.

The way the paint keeps its condition over time can be assisted by you. The easiest way to keep that paint looking bright and shiny is to keep it clean. A wash once a week will do wonders. However, it must be done correctly.

Washing your vehicle

- Never use an automatic wash that has anything that touches the paint other than water.
- Wash your vehicle once a week to remove any build up of road grime that may have been deposited on your paint.
- Find a cool, shady spot to wash the vehicle. Do not ever wash it in direct sunlight.
- Hose the vehicle down from top to bottom with lots of cold water. This removes any grit or other loose particles and substances. Do not use a sponge or cloth yet.
- Fill a bucket with luke warm water and add no more than 2 capfuls of gentle detergent. Do not use hot water, strong soap or chemical detergents.
- To remove bird droppings on paint, soak with a wet sponge for several minutes before washing off. If still evident, use a solution of one litre of water and 110 grams of dissolved baking soda (Bicarbonate of Soda). Flush the washed parts with clean water.
- Starting with the roof, use a clean sponge to clean a small section at a time. Do not allow liquid to dry before rinsing off that section with clean water. When you have completed each section, rinse the whole vehicle again with cold water.
- Dry the clean vehicle thoroughly with a good quality Chamois.

CARING FOR PAINT cont.

WARNING

Care should be taken when moving the vehicle after washing, in case water has affected the brakes. Applying the brakes lightly will indicate if they have been affected. To dry them quickly, lightly apply the brakes while maintaining a slow forward speed with a clear area ahead, until brake performance returns to normal.

Removing stains, such as grease, oil and tar spots

Just washing your vehicle regularly means that most of the harmful substances deposited on the paint will be removed before they can cause permanent damage. However, some substances are not easy to remove, so if you notice stains on the paint, make sure that you remove them at the earliest possible opportunity.

Grease and oil, and even tar if it is fresh, can be removed from the paint with a little kerosene or turpentine. As a precaution against staining, wash and polish the area as soon as possible after the stain has been removed.

A rubbing or cutting compound can be used after a normal wash. But this should never be done on a regular basis because it removes paint.

WARNING

- Some chemical cleaners used for removing road oils and tars from painted surfaces have been found to be detrimental to automotive paint.
- If petrol is spilt on the paint when refilling, flush off immediately with clean water, as petrol has a tendency to stain or soften the new paint finish during the weathering out period, particularly when the vehicle is exposed to high temperatures.
- Petrol must not be used to clean any painted or plastic surfaces.

Ventilation system intake

The intake area between the bonnet and the windscreen may collect leaves, which will impair air flow into the vehicle.

It is recommended to clear this area of debris whenever washing your vehicle.

Under vehicle washing

Your vehicle has a factory-applied PVC undercoating in the wheel arches (including longitudinal members) which provide permanent protection and needs no special maintenance. The surfaces of the vehicle underside not covered by PVC are provided with a durable protective wax coating. Once a year, preferably before the start of the cold season the wax coating and PVC coating should be checked and if necessary, restored to perfect condition. Commercial bitumen and rubber materials can damage PVC coating. Have all work on the underbody performed by a Holden Dealer, as it requires knowledge of the specified materials and experience concerning their application.

The underbody should be washed following the end of the cold weather season to remove any dirt adhering to the underbody, since this may also contain salt.

ROOF, PAINT POLISHING, WHEELS AND TYRES

Polishing

Under normal circumstances the paint does not need polishing to retain its shine. A weekly wash is sufficient. However, the use of a Polymer Glaze about every three months will reduce the effects of road bloom by removing natural contaminants which can build up on the paint.

Do not attempt to apply a polish without first washing. This will ensure that all the loose grit, surface dirt, dust or grease etc, is removed.

Tyres

Sponging with cold water is all that is necessary for normal cleaning. Oil and grease should be removed with soap and water or detergent. For tar or other substances, a mild abrasive, such as mechanic's hand soap or kitchen cleaning powder, may be used if necessary. Thoroughly wash the tyres with water to finish. Petrol must not be used for cleaning tyres.

Alloy wheels*

To preserve the original appearance of alloy wheels, keep them clean and free from build up of road dirt. Do not use abrasive cleaners on alloy wheels.

EXTERIOR GLASS CLEANING

Glass cleaning – general

Special care should be taken to avoid scratching the glass. If it is cleaned at the same time as the rest of the vehicle, there is a possibility that particles of grit will cause fine scratches. Flush off any mud on the glass when washing the body, but leave the final cleaning and polishing until afterward. Use Holden Glass Cleaner and wash each section of glass in turn, making sure the water, its container and the sponge are quite clean and free from grit. A clean old linen cloth is better than new material for polishing glass.

Windscreen

It is important that the windscreen be kept clean so the wiper blades may be as effective as possible. Old wiper blades can cause windscreen scratching and so should be regularly inspected and replaced.

Abrasive cleaners should never be used to clean glass as they can cause scratches, impairing night vision. After the windscreen has been cleaned with a wet sponge it should be wiped over with a soft, lint free cloth or chamois.

It is recommended that Holden Optikleen be added to the windscreen washer reservoir.

Wiper blades

Oil and road scum thrown up on the windscreen will cause smearing when the wipers are switched on, when the dirt is transferred onto the wiper blades. Many owners, while they methodically clean the windscreen glass, omit to clean the wiper blades and consequently smearing of the glass reappears immediately the wiper blades are used. The blades can be cleaned by lifting them off the windscreen and cleaning with Holden Optikleen and a clean cloth.

Do not operate the wiper blades by hand as this would damage the wiper drive mechanism.

If the wiper blades are used to clean dust and dirt from the windscreen in dry conditions always use the washer system first to wet the windscreen. Ensure the windscreen washer reservoir is not empty.

Should the wiper blades be frozen to the windscreen, they must be lifted off and freed by hand before switching on the wipers.

CLEANING PRODUCTS

Part Number	Size	Description	Usage
92145132	237 ml	Quick and Easy Speed Finish	Seals in a deep, lustrous glazed finish. Long life protection from oxidation, salt and weather damage.
92145418	437 ml	Quick and Easy Speed Finish	Seals in a deep, lustrous glazed finish. Long life protection from oxidation, salt and weather damage.
92145130	237 ml	All Purpose Cleaner	Cleans and deodorises velour, most vinyl upholstery, roof linings, mats and carpets.
92145416	437 ml	All Purpose Cleaner	Cleans and deodorises velour, most vinyl upholstery, roof linings, mats and carpets.
92145133	237 ml	Glass Cleaner	Cleans all glass surfaces.
92145419	437 ml	Glass Cleaner	Cleans all glass surfaces.
92140005	500 ml	Optikleen	Windscreen washer solvent.
92140004	5 ml	Optikleen Sachet	Windscreen washer solvent; 1 sachet per washer bottle refill.
92145129	237 ml	Hi Suds Car Wash	Cleans vehicle exterior.
92145415	437 ml	Hi Suds Car Wash	Cleans vehicle exterior.
92145131	237 ml	Vinyl and Trim Dressing	Seals and protects vinyl upholstery and plastic trim.
92145417	437 ml	Vinyl and Trim Dressing	Seals and protects vinyl upholstery and plastic trim.
92145140	120 ml	Leather Revitaliser	Revitalises the leather upholstery.
92145141	120 ml	Leather Cleaner	Cleans the leather upholstery.
92145142	120 ml	Leather Protector	Protects the leather upholstery.
92145143	1 Kit	Leather Care Kit	Contains leather revitaliser, cleaner and protector.
92145135		Chamois	Cloth for wiping off excess water from the vehicles exterior after washing and rinsing.
92145134		Handle Grip Sponge	Sponge for washing the vehicle.
92145136		Microfibre Glass Cleaning Cloth	Cloth for cleaning all glass surfaces.
92145137		Microfibre General Purpose Cleaning/ Polishing Cloth	Cloth for general purpose cleaning/ polishing.

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